Master Maths 7 Worksheet 1
Whole Numbers 1

1

Name: _____

1. Write the following numbers in numeral form.

(a) seven hundred and forty-three

(b) thirteen thousand, eight hundred and nine

(c) six hundred and fifty-three thousand and twenty

(d) seven million, seventeen thousand, eight hundred and fifty-four

2. Write the following numbers in words.

(a) 956

(b) 47 180

(c) 8 203 914

3. Using all the digits 6, 8, 1 and 3 write:

(a) the largest number possible

(b) the smallest number possible

4. Arrange the following numbers in order from the smallest to the largest.

3452 3542 3425 2345 2543

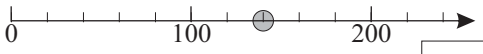
5. Write the correct symbol (< or >) between the following pairs of numbers.

(a) 57 ☐ 68 (b) 394 ☐ 389

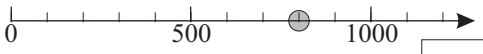
(c) 1092 ☐ 1029 (d) 660 ☐ 671

6. Write the number shown by the dot on the number lines below.

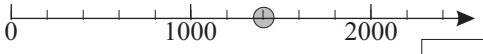
(a)



(b)



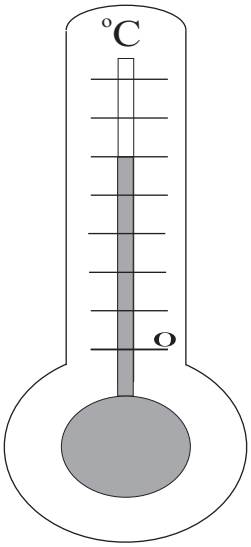
(c)



7. The divisions on this thermometer are 5°C.

(a) Write the temperature next to each mark on the scale. (0° is shown)

(b) What temperature is this thermometer reading?



8. (a) List all the ***odd*** numbers that can be formed using the digits **5**, **7** and **4**.

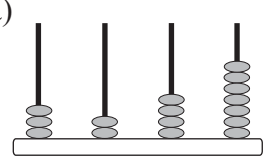
(b) List all the ***even*** numbers that can be formed using these digits.

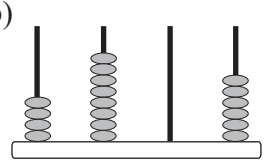
Master Maths 7 Worksheet 2
Whole Numbers 2 - Place Value

2

Name: _____

1. Write the whole number represented on each spike abacus below.

(a) 

(b) 

2. Write each of the following as one number.

(a) 4000 + 900 + 70 + 2

(b) 5000 + 300 + 6

(c) 8000 + 10

(d) 60 000 + 400 + 50

(e) 700 + 3000 + 9

(f) 20 + 7000 + 80 000

3. Add 10 to the following numbers.

(a) 79 (b) 349 (c) 703

(d) 95 (e) 2350 (f) 8993

4. Subtract 10 from the following numbers.

(a) 81 (b) 497 (c) 501

(d) 1003 (e) 2675 (f) 7002

5. Add 100 to the following numbers.

(a) 9 (b) 1075 (c) 12 970

6. Subtract 100 from the following numbers.

(a) 3781 (b) 4062 (c) 32 504

7. Round the following numbers to the nearest 10.

(a) 37 (b) 852 (c) 6797

8. Round the following numbers to the nearest 100.

(a) 739 (b) 3463 (c) 5896

9. Find the following numbers.

(a) This four digit odd number has seven thousands and twice as many hundreds as it has tens. The sum of the four digits is 28.

(b) The sum of the four digits of this number is 20. It has one more unit than it has thousands. It has three more hundreds than it has units. It is larger than 5000.

10. Rearrange the letters of the following phrases to spell numbers.

(a) SHIVERY TENT _____

(b) NEW TOY NET _____

Master Maths 7 Worksheet 3
Addition and Subtraction

3

Name: _____

1. Complete this addition table without using a calculator.

+			31			
36	58					
52						
		70		63		
15					41	
39		86				
					50	61

2. Find the answers to the following problems.

(a)
$$\begin{array}{r} 568 \\ +\,927 \\ \hline \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 2069 \\ 157 \\ 4385 \\ 671 \\ +\,1304 \\ \hline \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 823 \\ -\,417 \\ \hline \\ \hline \end{array}$$

3. Four containers were to be loaded onto a truck. The weights of the containers are shown below.

1256 kg	985 kg	842 kg	1397 kg

(a) Find the total weight of the four containers. Do not use a calculator.

(b) The maximum weight that can be carried by the truck is 4250 kg. How many kilograms will need to be removed to make this load limit?

4. Jay and Mitchell bought a 10 kg box of small chocolates. They each guessed how many chocolates were in the box.
Jay guessed 258.
Mitchell guessed 316.
They counted 284 chocolates in the box.
(a) Who was closest with their guess?

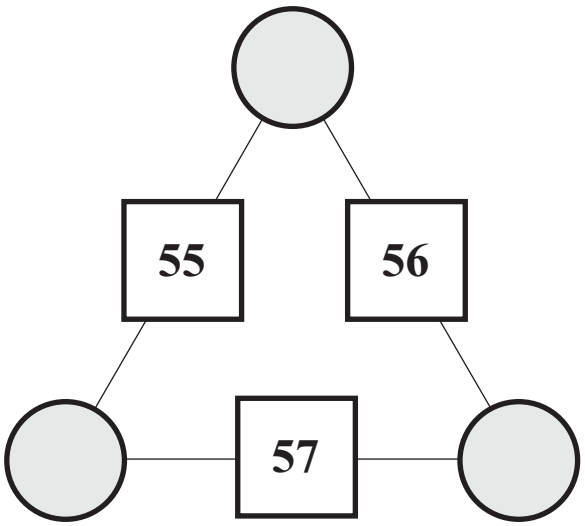
(b) They roughly divided the chocolates into two piles. Jay had 161 in his pile. How many does he need to give Mitchell so they have the same number each?

5. Find the missing digits in the following calculations.

(a)
$$\begin{array}{r} 28\square \\ 5\square 6 \\ +\,\square 17 \\ \hline 1000 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 8\square 5 \\ -\,\square 9\square \\ \hline 228 \\ \hline \end{array}$$

6. Write numbers in the circles in the diagram below so that the numbers in the squares are the sum of the numbers in the two adjoining circles.



Master Maths 7 Worksheet 4
Multiplication, Factors and Multiples

4

Name: _____

1. Complete this multiplication table without using a calculator.

×			8			10
		21				
4					24	
			48			
				40	48	
9	18					
7		49				

2. (a) Dali's chooks laid 6 eggs every day. How many eggs does he get each week?

(b) Dali sells 3 dozen of his eggs each week to friends. How many eggs does he keep for himself each week?

(c) Mez bought 9 tubes of paint. She received $16 change from $70. How much did each tube of paint cost?

3. Write all the factors of the following numbers.

(a) 15

(b) 40

(c) 42

(d) 120

4. What is the highest common factor of the following pairs of numbers.

(a) 15, 40 (b) 42, 40 (c) 40, 120

5. A carpenter had two lengths of wood.
One was 120 cm and the other was 72 cm long
He wanted to cut them into small pieces.

(a) What is the largest length that these small pieces could be and have no waste?

(b) How many of these small pieces would there be?

6. Find the lowest common multiple of the following pairs of numbers.

(a) 9, 12 (b) 6, 9 (c) 12, 10

7. There are three bus services from the Abbey bus station.
Every second day a bus leaves for Berton.
Every third day a bus leaves for Claire.
Every fifth day a bus leaves for Darley.
On January 1st all three buses services run.

(a) What are the next three dates when ***two*** buses will run?

(b) What is the next date that all three buses will run?

Master Maths 7 Worksheet 5
Divisibility and Prime Numbers

5

Name: _____

1. Use the tests for divisibility to complete the table below by ticking the boxes to indicate which of the numbers at the top are factors of the numbers shown. One row is completed as an example.

	2	3	4	5	6	8	9	10
8880	✓	✓	✓	✓	✓	✓		✓
3942								
32 160								
44 280								
51 840								
2136								
36 720								

2. From the numbers below, circle the ***two*** that are prime numbers.

352 349 571 505

387 531 300 459

3. Complete the factor tree for each of the following numbers.

1764 9000

4. Write the two numbers from question 3 as products of their prime factors.

(a) 1764 = _____

(b) 9000 = _____

5. (a) Unscramble the letters of the phrase below to spell the name given to a number that is not a prime number.

MICE UP TROMBONES

_____

(b) Unscramble the letters of the phrases below to find terms from this worksheet.

NUMB PREMIER

_____

CARROT FEET

_____

VIII TIDY LIBS

_____

Master Maths 7 Worksheet 6
Powers and Square Roots

6

Name: _____

1. Write the following terms in index form.

(a) $2 \times 2 \times 2 \times 2$ (b) $5 \times 5 \times 5$

2. (a) Complete the factor tree for each of the following numbers.

8100 5488

(b) Write these numbers as products of their prime factors.

8100 = _____

5488 = _____

(c) Write these numbers as products of their prime factors in ***index form***.

8100 = _____

5488 = _____

3. Find the numbers represented by the products of prime numbers shown below.

(a) $2^3 \times 3^2 \times 7^2$ (b) $3^3 \times 5^2 \times 7^3$

4. Without using a calculator find the following.

(a) 30^2 (b) 40^2 (c) 50^2

5. Without using a calculator use the answers from question 4 to find the following.

(a) Choose which of the following alternatives is equal to 39^2.

A 821 **B** 921 **C** 1521 **D** 1721

(b) Choose which of the following alternatives is equal to 43^2.

A 1849 **B** 2449 **C** 2649 **D** 3149

6. Without using a calculator find the following.

(a) $\sqrt{16}$ (b) $\sqrt{25}$ (c) $\sqrt{49}$ (d) $\sqrt{64}$

7. Without using a calculator use the answers from question 6 to find the following.

(a) Which alternative is the approximate decimal answer to $\sqrt{15}$.

A 2.9 **B** 3.9 **C** 4.9 **D** 5.9

(b) Which alternative is the approximate decimal answer to $\sqrt{50}$.

A 4.1 **B** 5.1 **C** 6.1 **D** 7.1

8. Without using a calculator find which of the following alternatives is the best estimate of 9.3^2?

A 78.5 **B** 86.5 **C** 97.5 **D** 107.5

Master Maths 7 Worksheet 7
Multiplication and Division

7

Name: _____

1. Complete the following multiplication problems.

(a) $\begin{array}{r} 68 \\ \times\ 7 \\ \hline \end{array}$ (b) $\begin{array}{r} 359 \\ \times\ 4 \\ \hline \end{array}$

(c) $\begin{array}{r} 27 \\ \times 18 \\ \hline \end{array}$ (d) $\begin{array}{r} 569 \\ \times\ 87 \\ \hline \end{array}$

2. Find the product of 73 and 96. Clearly show workings.

3. Without using a calculator evaluate the following.

(a) 40×100

(b) 30×60

(c) 50×700

(d) 800×900

4. Round the following numbers to the nearest 10.

(a) 48 (b) 94 (c) 51 (d) 27

5. Round the following numbers to the nearest 100.

(a) 371 (b) 847 (c) 209 (d) 780

6. Complete the following table. One line is completed as an example.

Problem	Answer Using Calculator	Problem with Rounded Numbers	Answer Using Rounded Numbers	Difference Between the Answers
23×57	1311	20×60	1200	111
57×8				
83×29				
43×78				
92×49				

7. Without using a calculator evaluate the following.

(a) $348 \div 6$

(b) $2036 \div 4$

(c) $16\,030 \div 5$

(d) $2506 \div 7$

(e) $6000 \div 20$

(f) $80\,000 \div 400$

8. Complete the following table. One line is completed as an example.

Problem	Answer Using Calculator	Problem with Rounded Numbers	Answer Using Rounded Numbers	Difference Between the Answers
$924 \div 28$	33	$900 \div 30$	30	3
$609 \div 21$				
$899 \div 29$				
$1536 \div 48$				
$792 \div 18$				

Master Maths 7 Worksheet 8
BODMAS

8

Name: _____

1. Write the word represented by each letter in the acronym BODMAS.

B	
O	
D	
M	
A	
S	

2. Solve the following problems.

(a) $6 + 3 \times 4$

(b) $(6 + 3) \times 4$

(c) $\frac{1}{2}$ of $8 + 6$

(d) $\frac{1}{2}$ of $(8 + 6)$

(e) $9 \times (4 + 6) \div 3$

(f) $9 \times 4 + 6 \div 3$

(e) $4 \times 12 \div 6 \times 5$

(f) $8 + 9 - 3 + 7 - 5$

3. Solve the following problems.

(a) $8 \times (4 + 2) - 6 \div 3 + \frac{1}{2}$ of $(16 - 4)$

(b) $12 + 8 \div 4 \times 3 - \frac{1}{2}$ of $6 \times 4 - 12 \div 2$

4. In the spaces provided write one of the operations (+, -, ×, ÷) to make each equation correct

(a) 6 ☐ 4 ☐ 8 = 16

(b) 8 ☐ 12 ☐ 4 = 11

(c) 9 ☐ 3 ☐ 3 = 10

(d) 10 ☐ 5 ☐ 4 ☐ 2 = 10

5. Include brackets in the following equations to make them correct.

(a) $4 + 3 \times 3 + 2 = 19$

(b) $4 \times 2 + 8 \div 2 + 2 = 10$

6. Complete the following equations by adding brackets and/or the operation symbols.

(a) 2 ☐ 2 ☐ 2 ☐ 2 = 6

(b) 2 ☐ 2 ☐ 2 ☐ 2 = 4

(c) 2 ☐ 2 ☐ 2 ☐ 2 = 12

(d) 2 ☐ 2 ☐ 2 ☐ 2 = 2

(e) 2 ☐ 2 ☐ 2 ☐ 2 = 5

(f) 2 ☐ 2 ☐ 2 ☐ 2 = 1

Master Maths 7 Worksheet 9
Problem Solving

9

Name: _____

1. The lowest temperature overnight was 7°C.
The highest temperature the next day was 25°C.
By how many degrees did the temperature rise that day?

2. A truck weighs 2350 kg.
22 containers each weighing 75 kg are loaded onto the truck.
What will be the total weight of the truck and its load?

3. Tim makes picture frames. It takes him 40 minutes to make each frame.
(a) How many minutes will it take him to make 15 frames?

(b) How many hours is this?

(c) Tim has calculated that the material for each frame costs $25.
Tim charges $20 per hour for his labour.
What will be the total charge (materials and labour) for Tim to make the 15 frames?

4. Chloe is starting a job earning $18 per hour.
If she works for 14 hours, how much will she earn?

5. Jason works for 12 hours and earns $192.
How much did he earn each hour?

6. There are 52 people who want to play in a badminton competition. Each team is to have four players.
How many teams can be formed?

7. A sporting club is going to conduct a ride-a-thon to raise money.
One bike is to be ridden non-stop for two days.
There are 24 riders.
For how many hours will each rider need to ride?

8. Bales of horse feed are being sold at a special price of $8 per bale for a minimum of 30 bales.
Four friends decide to equally share the cost of buying 30 bales.
How much will they each need to pay?

Master Maths 7 Worksheet 10
Number Laws

10

Name: _____

1. State whether the following statements are true (***T***) or false (***F***).

(a) $5 + 4 = 4 + 5$ ☐

(b) $9 - 6 = 6 - 9$ ☐

(c) $7 \times 3 = 3 \times 7$ ☐

(d) $9 \div 3 = 3 \div 9$ ☐

(e) $(9 + 4) + 8 = 9 + (4 + 8)$ ☐

(f) $(3 \times 5) \times 2 = 3 \times (5 \times 2)$ ☐

(g) $(9 - 4) - 3 = 9 - (4 - 3)$ ☐

(h) $(12 \div 6) \div 2 = 12 \div (6 \div 2)$ ☐

2. Evaluate the following problems two ways.

Example

$5(6 + 8)$	$5(6 + 8)$
$= 5 \times (6 + 8)$	$= 5 \times 6 + 5 \times 8$
$= 5 \times 14$	$= 30 + 40$
$=$ **70**	$=$ **70**

(a) $4(8 + 9)$ $4(8 + 9)$

(b) $5(20 - 7)$ $5(20 - 7)$

3. Fill in the spaces in the equations below.

(a) $8 \times 47 = 8 \times (50 -$ ☐ $)$

(b) $8 \times 47 = 8 \times (40 +$ ☐ $)$

4. Using questions 2 and 3 as examples show two ways to solve the following problem.

7×59 7×59

5. Circle the calculations below (**A** - **D**) that would give the same answer as 12×28? More than one answer.

A $4 \times 3 \times 7 \times 4$ **B** $9 \times 3 \times 14 \times 2$

C $7 \times 2 \times 4 \times 6$ **D** $4 \times 14 \times 2 \times 3$

6. The technique in question 5 can be used to make calculations easier.

Example

18×55
$= 2 \times 9 \times 5 \times 11$
$= 2 \times 5 \times 9 \times 11$
$= 10 \times 99$
$=$ **990**

Use this technique to solve the following calculations.

(a) 14×45 (b) 16×35

7. Jemma's calculator had the 8 button broken. Give an example of how Jemma could solve the following problems using her calculator.

Example 28×87
$= 4 \times 7 \times (90 - 3)$

(a) 18×81 (b) 28×895

Master Maths 7 Worksheet 11
Integers

11

Name: _____

1. Complete the following patterns.

(a) -6, -5, -4, -3, ☐, ☐, ☐, ☐.

(b) 12, 10, 8, 6, ☐, ☐, ☐, ☐.

(c) 19, 15, 11, 7, ☐, ☐, ☐, ☐.

(d) -17, -16, -14, -11, ☐, ☐, ☐, ☐.

2. Place the correct symbol (< or >) between the following pairs of numbers.

(a) -4 ☐ 2 (b) 5 ☐ -3

(c) 0 ☐ -4 (d) -3 ☐ -7

3. Write these numbers in order from the smallest to the largest.

-4 6 0 -10 8 -1 9 -13

_____

4. What is the gap between the following pairs of numbers.

(a) -2, 5 ☐ (b) -12, -5 ☐

5. On a particular day the maximum temperatures of four cities are listed below.

City	Temperature
Sydney	19°C
Beijing	36°C
Oslo	-15°C
Boston	-9°C

What was the difference between the maximum temperatures for the following cities?

(a) Sydney and Oslo ☐

(b) Beijing and Boston ☐

(c) Oslo and Boston ☐

(d) Beijing and Sydney ☐

6. The overnight minimum temperature at Mount Kosciuszko was -18°C. The maximum temperature the next day was 7°C.

(a) What is the difference between these two temperatures?

☐

(b) The overnight minimum temperature on another night was -14°C. The temperature increased by 19° to the maximum temperature on the next day. What was the maximum temperature on the next day?

☐

(c) The maximum temperature on another day was 13°C. The temperature then dropped by 24° to the minimum on the following night. What was the minimum temperature that night?

☐

7. The coldest temperature ever recorded was -89°C at the Soviet Vostok Station in Antarctica on July 21, 1983.
The hottest temperature ever recorded was 57°C at Death Valley in California on July 10, 1913.
What is the difference between the coldest and the hottest temperatures?

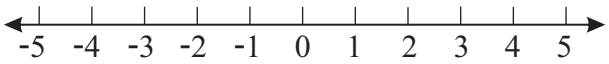
☐

Master Maths 7 Worksheet 12
Integers - Addition and Subtraction

12

Name: _____

The following number line may help find the answers to question 1.



1. Find the answers to the following problems.

(a) 4 - 6 (b) -3 + 5 (c) -4 + 4

(d) -1 - 3 (e) 2 - 6 (f) -2 - 3

(g) 3 - 7 (h) -5 + 9 (i) 4 - 9

2. Find the answers to the following problems.

(a) 7 - 9 (b) -6 + 8 (c) -4 - 5

(d) -1 + 10 (e) -2 - 11 (f) 2 - 12

(g) -7 + 11 (h) -9 + 5 (i) 7 - 13

(j) -12 + 4 (k) -8 - 9 (l) 12 - 22

(m) -21 + 5 (n) -38 - 6 (o) -25 + 37

3. Find the answers to the following problems. Replace two signs by one before solving.

Example 2 - -5
= 2 + 5
7

(a) 2 - -5 (b) -4 + -6 (c) -3 - +7

(d) -6 - -6 (e) -9 + -5 (f) 2 + $^{+}$5

(g) -7 + $^{+}$4 (h) 8 - -7 (i) -9 - $^{+}$8

(j) 12 - -9 (k) -23 + -7 (l) -35 + $^{+}$16

4. Find the missing numbers.

(a) 4 - ☐ = -9 (b) 7 + ☐ = -2

(c) -9 + ☐ = -2 (d) -5 + ☐ = 0

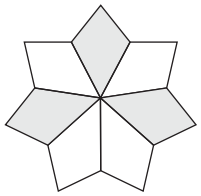
(e) ☐ + 14 = 10 (f) ☐ - 4 = -9

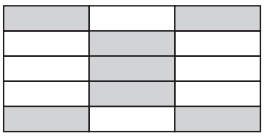
Master Maths 7 Worksheet 13
Fractions 1

13

Name: _____

1. What fraction of these shapes is shaded?

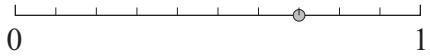
(a) 

(b) 

2. What fraction is shown by the dot on each of these number lines?

(a)

(b)



3. Write a fraction with a denominator of 8 and a numerator of 9.

4. (a) Karley's cat had a litter of five kittens. Four were male. What fraction of the litter was male?

(b) Karley's dog also had a litter. There were 3 male and 2 female puppies. What fraction of this litter was female?

5. Write the following fractions in numeral form.

(a) seven-eighths (b) three-quarters

6. Write the following fractions in words.

(a) $\frac{4}{5}$ _____

(b) $\frac{3}{7}$ _____

7. Complete the following equivalent fractions.

(a) $\frac{3}{4} = \frac{\square}{16}$ (b) $\frac{7}{8} = \frac{21}{\square}$

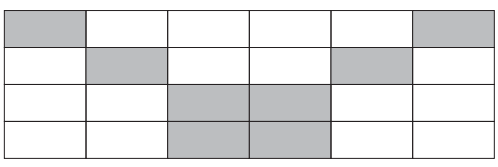
(c) $\frac{5}{6} = \frac{\square}{42}$ (d) $\frac{2}{9} = \frac{12}{\square}$

8. Write these fractions in their simplest form.

(a) $\frac{6}{9} = \square$ (b) $\frac{15}{20} = \square$

(c) $\frac{18}{27} = \square$ (d) $\frac{64}{72} = \square$

9. What fraction of this shape is shaded? Write answer in its simplest form



Master Maths 7 Worksheet 14
Fractions 2

14

Name: _____

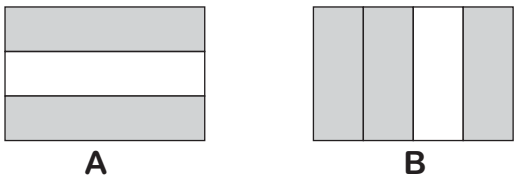
1. Find the lowest common denominator for the following pairs of fractions and change each fraction to have this denominator.

(a) $\frac{5}{8}$ $\frac{3}{4}$ (b) $\frac{3}{4}$ $\frac{4}{5}$

(c) $\frac{3}{5}$ $\frac{5}{8}$ (d) $\frac{2}{3}$ $\frac{3}{8}$

2. Write the symbol < or > between the fractions in question 1 to indicate which fraction is larger.

3. Which of the following shapes has the larger shaded area?

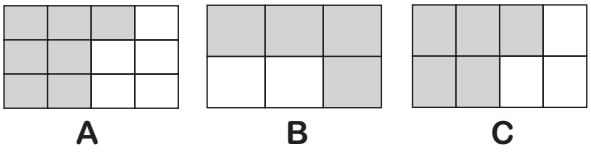


4. List four fractions that are equivalent to the ones below.

(a) $\frac{10}{16}$

(b) $\frac{24}{32}$

5. Three blocks of chocolate are divided as shown below and the shaded sections are eaten.



List the blocks of chocolate in order from the one with the ***most remaining*** to the one with the ***least remaining***.

6. Change the following to a mixed numbers.

(a) $\frac{8}{3} =$ (b) $\frac{16}{5} =$

(c) $\frac{26}{7} =$ (d) $\frac{49}{8} =$

7. Change the following to improper fractions.

(a) $2\frac{3}{5} =$ (b) $3\frac{4}{7} =$

(c) $6\frac{7}{9} =$ (d) $8\frac{5}{11} =$

8. (a) How many quarters are in 3?

(b) How many fifths are in 6?

(c) How many thirds are in $8\frac{2}{3}$?

Master Maths 7 Worksheet 15
Fractions - Addition and Subtraction

15

Name: _____

1. Complete the following calculations.

(a) $\frac{2}{5} + \frac{2}{5}$ (b) $\frac{7}{9} - \frac{5}{9}$ (c) $\frac{3}{7} + \frac{2}{7}$

(d) $1 - \frac{3}{8}$ (e) $2\frac{1}{5} + 3\frac{2}{5}$ (f) $5\frac{6}{7} - 1\frac{3}{7}$

2. Complete the following calculations.
Write answers in their simplest form.

(a) $\frac{1}{6} + \frac{1}{3}$ (b) $\frac{9}{10} - \frac{3}{5}$ (c) $\frac{5}{12} + \frac{1}{3}$

(d) $\frac{3}{8} + \frac{1}{3}$ (e) $\frac{7}{8} - \frac{3}{5}$ (f) $\frac{3}{7} + \frac{1}{3}$

(g) $\frac{1}{6} + \frac{5}{8}$ (h) $\frac{3}{4} - \frac{5}{11}$ (i) $\frac{2}{9} + \frac{1}{6}$

3. Complete the following calculations.
Write answers as mixed numbers in their simplest form.

(a) $3\frac{5}{6} + 2\frac{2}{3}$ (b) $5\frac{3}{4} - 2\frac{9}{10}$

4. A cake required the following ingredients.

$\frac{3}{4}$ kg of flour $\frac{1}{2}$ kg of sultanas

$\frac{1}{4}$ kg of sugar $\frac{1}{4}$ kg of butter

What is the total weight of these ingredients?

5. It is recommended to allow $4\frac{1}{2}$ hours to walk along a certain track in a national park.
Two people walk for $2\frac{3}{4}$ hours before stopping for lunch.
How long will it take them to complete the walk?

6. Jennie made a pizza. She ate one-quarter and gave one-third to her friend.
What fraction of the pizza remains?

Master Maths 7 Worksheet 16
Fractions - Multiplication and Division

16

Name: _____

1. Complete the following calculations.

(a) $\frac{1}{3} \times \frac{2}{5}$ (b) $\frac{3}{4} \times \frac{5}{7}$ (c) $\frac{5}{6} \times \frac{7}{8}$

2. Complete the following calculations.
Cancel fractions to their simplest form and write answers in their simplest form.

(a) $\frac{3}{5} \times \frac{10}{21}$ (b) $\frac{9}{16} \times \frac{10}{21}$ (c) $\frac{8}{15} \times \frac{25}{36}$

3. Complete the following calculations.
Write answers as mixed numbers in their simplest form.

(a) $2\frac{2}{9} \times 3\frac{3}{8}$ (b) $3\frac{8}{9} \times 3\frac{3}{10}$

4. Find the following.

(a) $\frac{1}{3}$ of 12 m (b) $\frac{3}{4}$ of 20 kg (c) $\frac{5}{8}$ of \$40

(d) $\frac{3}{5}$ of 45 m (e) $\frac{7}{10}$ of 80 kg (f) $\frac{5}{7}$ of \$35

5. Find three-quarters of five-eighths.

6. Complete the following calculations.
Write answers in their simplest form.

(a) $\frac{1}{3} \div \frac{2}{5}$ (b) $\frac{3}{4} \div \frac{15}{16}$ (c) $\frac{3}{10} \div \frac{9}{14}$

7. Complete the following calculations.
Write answers in their simplest form.

(a) $3\frac{5}{9} \div 6\frac{2}{3}$ (b) $2\frac{9}{10} \div 4\frac{2}{5}$

8. Complete the following calculations.

(a) $6 \div \frac{2}{5}$ (b) $8 \div 2\frac{3}{4}$ (c) $\frac{3}{10} \div 9$

Master Maths 7 Worksheet 17
Fractions - Problem Solving

17

Name: _____

1. Don, Ron and Con earned $300. Don is to receive one-quarter, Ron is to receive one-fifth and Con will receive the remainder.

(a) What fraction of the earnings will Con receive?

(b) How much will they each receive?

Don

Ron

Con

2. A water container holds $2\frac{1}{2}$ litres. How many of these containers would be needed to fill a 30 litre drum?

3. A crowd 3000 spectators watched a game of soccer between the Strikers and the Onsiders. Four-fifths of the crowd barracked for the Strikers. How many people barracked for each team?

Strikers

Onsiders

4. A brick weighs $\frac{3}{4}$ kg.

(a) What would be the weight of 240 bricks?

(b) How many bricks would there be in a crate that weighs 600 kg?

5. Friends were watching a movie that was $3\frac{1}{2}$ hours long. They decided to stop it three-fifths of the way through to have a snack.

(a) How many hours were remaining? Give answer as a mixed number.

(b) How many minutes were remaining?

6. A cyclist completes 30 laps of a track in in 18 minutes.

(a) How many minutes did it take to complete one lap? Give answer as a fraction in its simplest form.

(b) How many minutes would it take to complete 80 laps?

(c) How many laps could be completed if the cyclist rode for one hour?

7. A mixture of sand and cement was such that the amount of cement was one-quarter the amount of sand. How many kilograms of each would be required to make 20 kg of the mixture?

sand

cement

Master Maths 7 Worksheet 18
Decimal Numbers 1

18

Name: _____

1. Write the following decimal numbers in words.

(a) 0.8 _____

(b) 0.007 _____

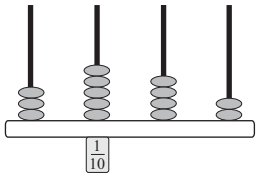
(c) 0.06 _____

2. Write the following decimals as fractions.

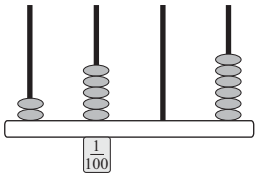
(a) 0.03 (b) 0.2 (c) 0.00009

3. What number is represented on each spike abacus below? The place value of one of the spikes is given for each abacus.

(a)



(b)



4. State the place value of the 6 in each of the following numbers. Write the answers in words.

(a) 2.367 _____

(b) 369.8 _____

(c) 5.2016 _____

5. Write the following numbers in decimal form.

(a) $\frac{27}{1000}$ (b) $\frac{306}{1000}$ (c) $\frac{97}{100}$

(d) $6\frac{375}{1000}$ (e) $5\frac{41}{1000}$ (f) $\frac{3452}{100}$

6. Write as decimal numbers.

(a) $3 + \frac{6}{10} + \frac{8}{100}$

(b) $9 + 50 + \frac{3}{100} + \frac{2}{10}$

(c) $1 + 400 + \frac{7}{1000} + \frac{6}{10}$

7. List the following numbers in order from smallest to largest.

0.2 0.099 $\frac{3}{10}$ $\frac{19}{100}$ $\frac{89}{1000}$ 0.006

_____ _____ _____ _____ _____ _____

8. Write the correct symbol (< or >) between the following pairs of numbers.

(a) 0.45 ☐ 0.54 (b) 0.41 ☐ 0.4095

9. Add ***one hundredth*** to the following numbers.

(a) 3.457 (b) 16.8 (c) 2.3969

10. Find the number ***midway*** between the following pairs of numbers.

(a) 2.3 and 2.4 (b) 6.81 and 6.84

11. How many hundredths are in seven tenths?

12. Jose drove his racing car around a track in 56.783 seconds.
Alonso's time was two hundredths of a second ***faster*** than Jose's time.
How long did it take Alonso to drive around the track?

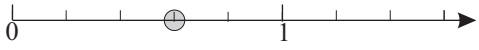
Master Maths 7 Worksheet 19
Decimal Numbers 2

19

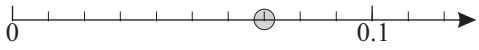
Name: _____

1. Write the number shown by the dot on each number line below.

(a)

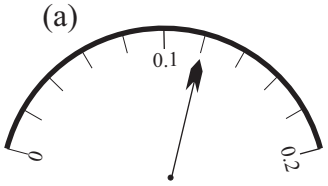


(b)

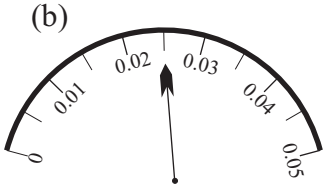


2. Write the number shown on these meters.

(a)



(b)



3. Round the amounts of money shown in table to:
(a) the nearest 5 cents
(b) the nearest 10 cents
(c) the nearest $1

Amount	Nearest 5c	Nearest 10c	Nearest $1
$5.36			
$9.72			
$20.48			
$12.13			

4. How many decimal places are in the following numbers?

(a) 2.35 (b) 10.3578 (c) 56.09701

5. Round the following numbers to ***one decimal place***.

(a) 5.673 (b) 12.081

6. Round the following numbers to ***two decimal places***.

(a) 4.5618 (b) 19.8372 (c) 5.29611

7. Convert the following fractions to decimal numbers.

(a) $\frac{3}{10}$ (b) $\frac{1}{4}$ (c) $\frac{3}{5}$

(d) $\frac{5}{8}$ (e) $\frac{11}{20}$ (f) $5\frac{3}{4}$

8. Convert the following fractions to decimal numbers using a dot or bar to indicate the repeating numbers. Show workings.

(a) $\frac{5}{9}$ (b) $\frac{2}{11}$

9. (a) Find two numbers that when rounded to one decimal place would both be 8.4, but when rounded to two decimal places would differ by three hundredths.

(b) Find two numbers that add to 10 and differ by one tenth.

Master Maths 7 Worksheet 20
Decimals - Addition and Subtraction

20

Name: _____

1. Find the answers to the following problems.

(a)
$$\begin{array}{r} 56.84 \\ +\ 2.70 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 20.69 \\ 1.50 \\ 43.85 \\ 6.70 \\ +\ 3.04 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 82.0 \\ -\ 42.7 \\ \hline \end{array}$$

2. Find the answers to the following problems. Show workings.

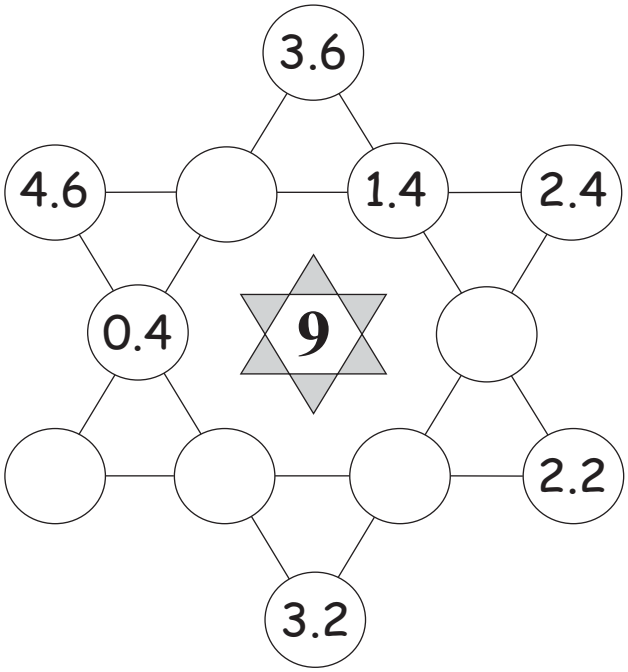
(a) 34.7 + 260.82 + 7.218 + 67

(b) 679.3 - 33.756

3. (a) Kylie weighs 65.7 kg. While holding her baby sister she stood on the scales and together they weighed 72.9 kg. What is the weight of her sister?

(b) If Kylie's sister gained 2.8 kg, what would she weigh?

4. Complete this diagram. All lines add to give the number in the centre.



5. Test your mental arithmetic. Solve the problems below using mental arithmetic then use a calculator to find the answer and the difference between your estimate and the actual answer.

Problem	67.89 + 4.3 + 5.721	456.37 - 9.8 - 69.38
Mental Arithmetic		
Calculator Answer		
Difference		

6. A piece of timber 5.4 metres long is cut into two pieces. One piece is 0.66 metres longer than the other. How long are the two pieces of timber?

Master Maths 7 Worksheet 21
Decimals - Multiplication and Division

21

Name: _____

1. Find the answers to the following problems.

(a)
$$\begin{array}{r} 25.96 \\ \times \quad 34 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 81.07 \\ \times \quad 6.3 \\ \hline \end{array}$$

2. Find the answers to the following problems. Show all workings.

(a) $33 \div 8$

(b) $27.38 \div 5$

(c) $56.78 \div 0.4$

(d) $9.5 \div 0.008$

3. (a) Estimate the answer to the following problem by rounding the numbers to the nearest ten before multiplying.

87.45×19.6

(b) Use a calculator to find the answer to this problem.

(c) What is the difference between these two answers?

4. Find the answers to the following problems without using a calculator.

(a) 45.67×10	
(b) $678.21 \div 10$	
(c) 2.7894×100	
(d) $89.103 \div 100$	
(e) 6.8×1000	
(f) $0.0402 \times 10\,000$	
(g) $0.05 \div 10$	
(h) $9.3 \div 100\,000$	
(i) $0.2 \times 100\,000$	

5. Complete the following conversions

(a) 5.3 km =	m
(b) 40 mm =	m
(c) 0.37 kg =	g
(d) 8900 cm =	m
(e) 0.0257 ML =	L
(f) 62 000 μm =	m
(g) 72.51 MW =	W
(h) 3 mm =	m
(i) 0.00507 kg =	g

Master Maths 7 Worksheet 22
Decimal Numbers - Problem Solving

22

Name: _____

1. How many balls weighing 0.3 kg each would be in a box that weighs 13.5 kg?

2. Four friends go out for dinner and the bill is $51.40. If they divide the bill equally, how much should they each pay?

3. A bag contains 11 balls - some tennis balls and some cricket balls.
The total weight of the 11 balls is 2 kg.
Each tennis ball weighs 0.10 kg.
Each cricket ball weighs 0.25 kg.
Find the number of each type of ball.

tennis balls

cricket balls

4. Jim bought a muffin, roll and juice for a total cost of $8.30.
Jacqui bought a muffin and roll for $6.05.
Peta bought a roll and juice for 5.85.
Find the price of each item.

muffin

roll

juice

5. What is the weight of a dozen eggs if each weighs 0.045 kilograms?

6. Danni's three long jump attempts were 4.78 m, 5.06 m and 4.95 m.
Find the average of these three jumps.

7. A green grocer noticed that three mangoes weighed the same as four avocadoes.
The mangoes each weighed 0.24 kg.
Find the weight of an avocado.

8. Gareth took 18 minutes 45 seconds to complete 15 laps of a go-cart track.

(a) Change the time taken to a decimal number of minutes.

min

(b) Use this decimal time to find the average time taken per lap (as a decimal number)

min

(c) Change this average lap time to minutes and seconds.

min sec

Master Maths 7 Worksheet 23
Percentages

23

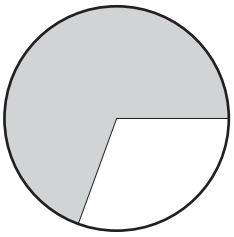
Name: _____

1. Choose which of the percentages is the best estimate of the shaded area of each shape below.

(a)

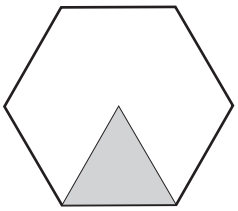
A 10% **B** 30%
C 70% **D** 90%

(b)



A 30% **B** 50%
C 70% **D** 90%

(c)



A 15% **B** 25%
C 35% **D** 45%

3. 87% of the students in a school were right-handed. What percentage was left-handed?

4. Complete the following conversion table.

Percentage	Fraction	Decimal
20%		
	$\frac{1}{4}$	
		0.5
	$\frac{2}{5}$	
32%		
	$\frac{11}{20}$	
		0.07
	$\frac{3}{50}$	

5. Find the following quantities.

(a) 50% of 60 kg

(b) 25% of $200

(c) 10% of 300 m

(d) 20% of 50 kg

(e) 45% of $300

(f) 6% of 700 m

6. Larry earns $56 000 a year. He receives a 3% pay rise. What will be his new annual salary?

7. A town has 45 000 people. In one year the population decreased by 2.5%.
What was the population at the end of the year?

8. Find the discounted price of the following items.

(a) A $3500 television is discounted by 20%.

(b) A $850 bicycle is discounted by 10%.

Master Maths 7 Worksheet 24
Ratio

24

Name: _____

1. Divide each of the following in the given ratio.

(a) $30	**1:2**		
(b) $100	**1:4**		
(c) $200	**9:1**		
(d) $60	**1:3**		
(e) $240	**5:3**		
(f) $180	**4:5**		

2. Use a ruler to measure the length of the boxes below.

(a) Divide this box in the ratio 2:5 and colour in the sections red and blue.

(b) Divide this box in the ratio 1:2 and colour in the sections yellow and green.

3. A recipe for a breakfast fruit juice is orange and mango juice mixed in the ratio of 3:1. How many mL of each juice are required to make 200 mL of the breakfast juice?

orange juice _____

mango juice _____

4. Mortar is to be made using sand and cement in the ratio 5:1.

(a) How many kg of sand and cement are required to make 30 kg of mortar?

sand _____

cement _____

(b) How many kg of cement are required if 10 kg of sand is used?

_____

(b) How many kg of sand are required if 3 kg of cement is used?

_____

5. Christie and Karley receive $600 for renovating a kitchen. Christie worked for 20 hours and Karley worked for 10 hours.
How much should they each get paid?

Christie _____

Karley _____

6. Sam runs at a speed of 3 metres per second. Kerry runs at a speed of 4 metres per second. They both go for a run, leaving home at the same time running in different directions. They return home at the same time. Sam knows she has run 12 km. How far has Kerry run?

_____

Master Maths 7 Worksheet 25
Rates

25

Name: _____

1. If 5 kg of apples cost $2.50:
(a) what is the cost of 1 kg of the apples?

c

(b) what is the cost of 8 kg of the apples?

$

2. If 10 metres of a material cost $30, what is the cost of 25 m of the material?

$

3. Geraldene hiked 12 kilometres in 3 hours. How long would it take her to hike 28 kilometres?

h

4. Which of the following dog foods represents the best value?

A 500g for $3.20

B 1 kg for $5.80

C 2 kg for $12.00

5. The dose for a certain medicine is 6 ml for every 10 kg of body weight of the person. How much medicine should be given to someone who weighs 50 kg?

mL

6. A particular car can travel 400 km on 20 litres of fuel.
(a) How far would it travel on 50 litres of fuel?

km

(b) How many litres of fuel would be used on a trip of 2500 km?

litres

7. An ostrich can run 80 metres in 4 seconds.
(a) How far would it run in 25 seconds at the same speed?

metres

(b) How long would it take an ostrich to run 120 metres?

sec

8. A cyclist is riding at a speed of 20 km/h. How many minutes would it take the cyclist to ride 15 km?

min

Master Maths 7 Worksheet 26
Patterns and Rules 1

26

Name: _____

1. Complete the following patterns.

(a) 1, 5, 9, 13, ☐ , ☐ , ☐

(b) 2, 4, 8, 16, ☐ , ☐ , ☐

(c) 30, 25, 20, 15, ☐ , ☐ , ☐

(d) 128, 64, 32, 16, ☐ , ☐ , ☐

2. Use words and symbols to explain the patterns in each of the parts in question 1.

> ***Example:*** 3, 6, 12, 24, ...
> ***Answer:*** multiply by 2 (×2)

(a) _____

(b) _____

(c) _____

(d) _____

3. Find the next four numbers in the number patterns that have the following starting numbers and method of finding each number.

> ***Example:*** 5 (+3)
> ***Answer:*** 5, 8, 11, 14, 17

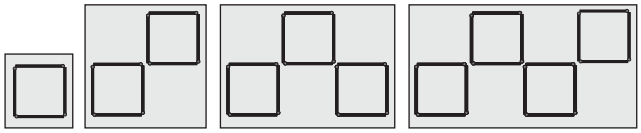
(a) 1 (×2) ☐ ☐ ☐ ☐

(b) 5 (+6) ☐ ☐ ☐ ☐

(c) 25 (-4) ☐ ☐ ☐ ☐

(d) 324 (÷3) ☐ ☐ ☐ ☐

4. The following pattern is made using matches.



Step 1 ***Step 2*** ***Step 3*** ***Step 4***

(a) Complete this table that shows the number of matches, m, for each step number, s.

s	m
1	
2	
3	
4	
5	
6	

(b) Complete the rule below that could be used to find the number of matches for a given step number.

$m =$ ☐ $\times s$

(c) How many matches would be needed for step 12? ☐

(d) What step number would have 40 matches? ☐

5. Complete this table of values for the following rule:

$m = s + 5$

s	m
1	
2	
3	
4	
5	
6	

6. Complete the rule for this table of values.

$m =$ ☐

s	m
1	6
2	12
3	18
4	24
5	30
6	36

Master Maths 7 Worksheet 27
Patterns and Rules 2

27

Name: _____

1. Complete the rules relating the symbols for each of the following tables of values.

(a)

b	a
1	7
2	8
3	9
4	10
5	11
6	12

$a =$

(b)

n	m
1	4
2	8
3	12
4	16
5	20
6	24

$m =$

(c)

x	y
20	15
21	16
22	17
23	18
24	19
25	20

$y =$

(d)

Q	P
3	1
6	2
9	3
12	4
15	5
18	6

$P =$

2. Complete the table of values for each of the following rules

(a) $y = 6 \times x$

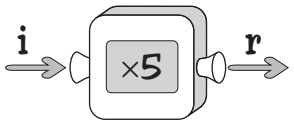
x	y
2	
5	
	42
11	
	120
30	

(a) $m = n + 7$

n	m
1	
3	
	15
13	
	30
42	

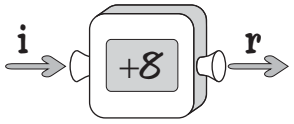
3. Complete the tables of values for each of the 'number machines' below.

(a)



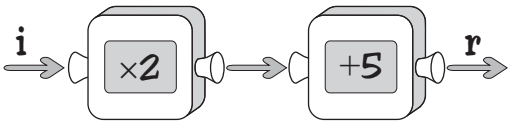
i	1		7	
r		15		45

(b)



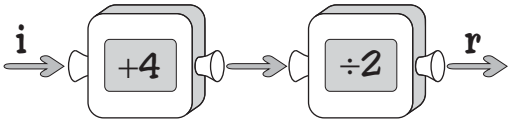
i	2		13	
r		15		52

(c)



i	2			22
r		17	25	

(d)



i	2		10	
r		5		12

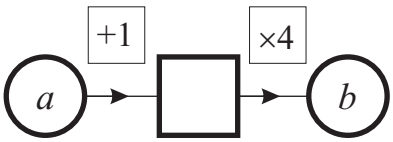
Master Maths 7 Worksheet 28
Patterns and Rules 3

28

Name: _____

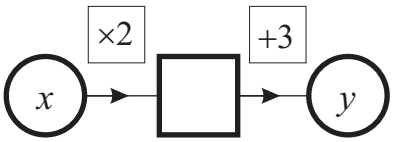
1. Complete the tables of values for the flowcharts shown below.

(a)



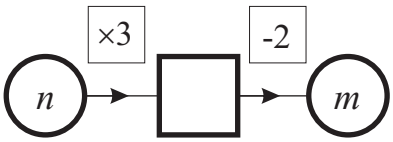
a	*b*
1	
2	
3	
4	

(b)



x	*y*
1	
2	
3	
4	

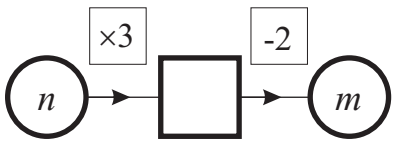
(c)



n	*m*
1	
2	
3	
4	

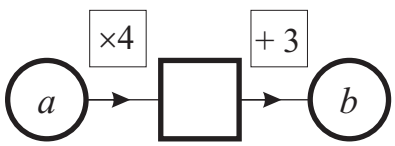
2. Write the rules for the following flowcharts.

(a)



m =

(b)



b =

3. Find the rules for the following tables of values.

(a)

a	*b*
1	3
2	5
3	7
4	9

b =

(b)

x	*y*
1	1
2	4
3	7
4	10

y =

(c)

n	*m*
1	6
2	8
3	10
4	12

m =

(d)

P	*Q*
1	0
2	2
3	4
4	6

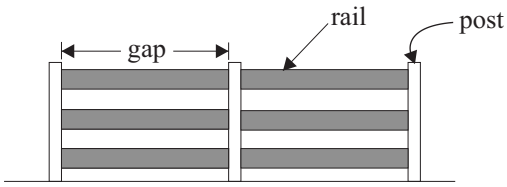
Q =

Master Maths 7 Worksheet 29
Patterns and Rules - Problem Solving

29

Name: _____

1. A post and rail fence is to be built as shown below.



There are three rails between each set of posts.

(a) Complete this table.

Number of gaps between posts (G)	Number of posts (P)	Number of rails (R)
1	2	3
2	3	6
3		
4		
10		
20		

(b) Find a rule connecting the number of posts, P, and the number of gaps, G.

$P =$

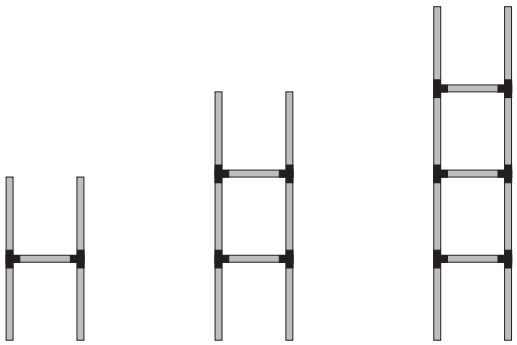
(c) Find a rule connecting the number of rails, R, and the number of gaps, G.

$R =$

(d) Find a rule connecting the number of rails, R, and the number of posts, P.

$R =$

2. A ladder company has produced an extendable ladder. It is made using pieces that can be fitted together. The pieces are all the same length.
The diagram below shows different lengths of the ladder. The number of rungs and pieces are listed.



1 rung
5 pieces

2 rungs
8 pieces

3 rungs
11 pieces

(a) Complete this table showing the number of pieces needed for different numbers of rungs.

r = number of rungs
p = number of pieces

r	p
1	5
2	8
3	11
4	
5	
6	

(b) Find a rule connecting p and r.

$p =$

(c) How many pieces would be needed for a ladder that had 12 rungs?

Master Maths 7 Worksheet 30
Writing Equations and Substitution

30

Name: _____

1. Write the following relationships as equations.

(a) m is equal to 7 added to p.

(b) P is equal to the sum of Q and R.

(c) Y is equal to X divided by 9.

(d) b is equal to the product of c and d.

(e) m is equal to 5 less than n.

2. Write the following relationships as equations.

(a) Power, P, of an electric motor is equal to the product of voltage, V, and current, I.

(b) Acceleration, a, is equal to velocity, v, divided by time, t.

(c) Magnetic force, F, on a wire is equal to the product of the magnetic field strength, B, length of the wire, L, and the current in the wire, I.

2. Find the value of y in the following equations if $x = 3$.

(a) $y = x + 5$ (b) $y = 4x$

(c) $y = 17 - x$ (d) $y = 2x + 4$

(e) $y = 5x - 6$ (f) $y = 4(x + 2)$

3. Find the value of P in the following equations for the values given.

(a) $P = 3Q + 7 \quad (Q = 4)$

(b) $P = 2m + 3n \quad (m = 5, n = 1)$

(c) $P = 6(2a + 5) \quad (a = 3)$

(*d*) $P = 4(3x - 2y) \quad (x = 4, y = 2)$

4. Solve the following equations given that:

$a = 2$, $b = 5$ and $c = 8$

(a) $y = 2a + 5b$ (b) $m = ab - c$

(c) $d = a(2b - c)$ (d) $R = a^2 + 5b - ac$

Master Maths 7 Worksheet 31
Solving Equations - Trial and Error

31

Name: _____

An example of the 'trial and error' method of solving equations is shown here.

Find n in the equation $3n + 7 = 34$

Guess for n	Left side $3n + 7$	Right side 34	Comment
4	19	34	Too low
8	31	34	Too low
10	37	34	Too high
9	34	34	Correct

Answer: $n = 9$

Use the 'trial and error' method to find the value of n in the following equations.

1. $5n - 7 = 48$

Guess for n	Left side	Right side	Comment

$n =$

2. $6n - 5 = 85$

Guess for n	Left side	Right side	Comment

$n =$

3. $n^2 + 2n - 5 = 30$

Guess for n	Left side	Right side	Comment

$n =$

4. $3n + 7 = 5n - 9$

Guess for n	Left side	Right side	Comment

$n =$

5. $3(n + 6) = 9(n - 6)$

Guess for n	Left side	Right side	Comment

$n =$

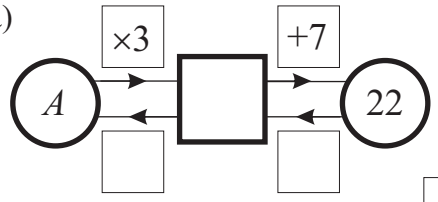
Master Maths 7 Worksheet 32
Solving Equations - Backtracking

32

Name: _____

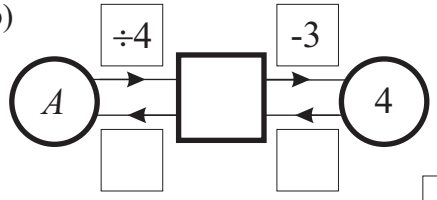
1. Complete the backtracking path on each of these flowcharts to find each value of A.

(a)



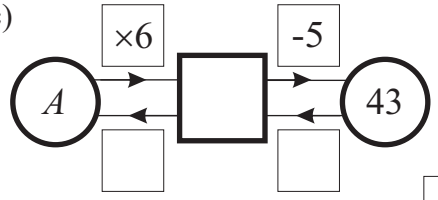
$A =$ ____

(b)



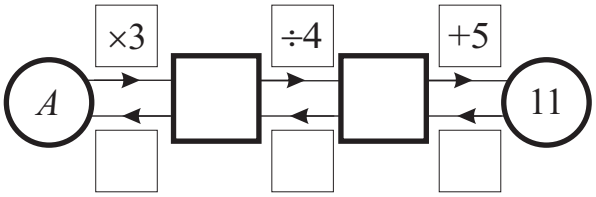
$A =$ ____

(c)



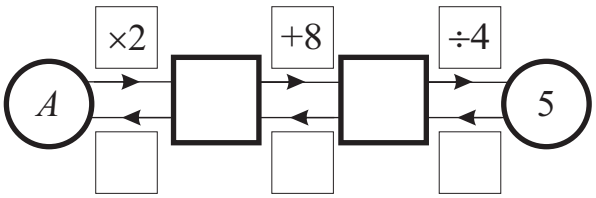
$A =$ ____

(d)



$A =$ ____

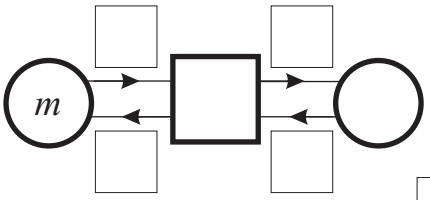
(e)



$A =$ ____

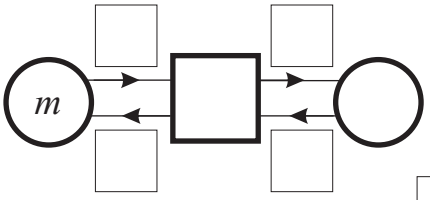
2. Complete the flowcharts for the following equations and use backtracking to solve.

(a) $4m - 5 = 23$



$m =$ ____

(b) $6(m - 3) = 24$



$m =$ ____

3. Use backtracking to solve the following equations.

(a) $2m + 9 = 17$

$m =$ ____

(b) $\frac{m}{3} - 5 = 1$

$m =$ ____

(c) $6(m + 7) = 72$

$m =$ ____

Master Maths 7 Worksheet 33
Solving Equations

33

Name: _____

1. Use the most appropriate method to solve the following problems.

(a) $3m - 6 = 9$

$m =$

(b) $\frac{m}{2} + 5 = 9$

$m =$

(c) $4(m + 3) = 40$

$m =$

(d) $\frac{3m}{5} + 7 = 16$

$m =$

(e) $5(2m - 7) = 45$

$m =$

(f) $\frac{3m + 7}{2} = 17$

$m =$

(g) $\frac{2(m - 9)}{3} = 10$

$m =$

(h) $\frac{7m + 8}{4} + 9 = 25$

$m =$

(i) $3(m + 4) = 7m - 8$

$m =$

Master Maths 7 Worksheet 34
Solving Equations - Problem Solving

34

Name: _____

1. Write the following problems as equations using x to represent the number. Solve the equations using an appropriate method.

(a) When this number is multiplied by 2 and then 8 is added to the result the answer is 26.

Equation: _____

$x =$

(b) When this number is divided by 4 and then 5 is added to the result the answer is 11.

Equation: _____

$x =$

2. Six bricks plus 5 kg weighed 23 kg.

(a) Write this as an equation using b to represent the weight of a brick.

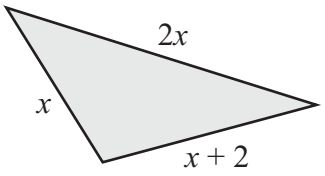
Equation: _____

(b) Solve this equation to find the weight of a brick.

$b =$

(c) 20 bricks weighed the same as two bags of cement.
Find the weight of a bag of cement.

3. The perimeter of this triangle is 26 cm.
The three side lengths are shown on the diagram.
Use trial and error to find x.



$x =$

4. Jonas is 9 years older than his youngest brother, Jaan. In two years Jonas will be twice Jaan's age.
How old is Jonas?

5. A 24 m long length of rope is cut into two pieces. One is 4 m longer than the other.
Find the length of the two pieces of rope.

6. There were 60 students on a school camp.
One day there were two activities - canoeing and hiking.
Those who went canoeing were told to take one bottle of water each.
Those who went hiking were told to take two bottles of water each.
75 bottles of water were taken.
How many students went on each activity?

Canoeing

Hiking

Master Maths 7 Worksheet 35
Simplifying Algebraic Expressions 1

35

Name: _____

1. Simplify the following algebraic expressions.

(a) $a + a + a + a$

(b) $x + x + x + x + x + x$

(c) $2m + 3m$

(d) $6n + 3n + n$

(e) $8p - 5p$

(f) $9c - 8c$

(g) $7a + 4a - 2a - 3a$

(h) $x + x + y + y + y + y$

(i) $m + n + m + n + n + m + n$

(j) $2x + 3y + 6x + 5y$

(k) $5m + 6n - 2m - 4n$

(l) $7x + 9y + 6x - y - 5y$

(m) $8a - 6a + 6b - 2a - 2b$

(n) $m + 7n + 5m - 6n - 6m - n$

(o) $7a + 6 + 2a + 5$

(p) $6m + 8 + 2m - 3$

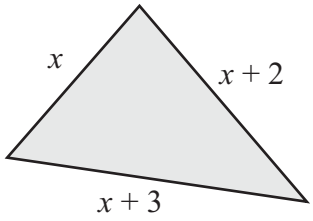
(q) $8x + 3x + 11 - 2x - 6$

(r) $6n + 7 - n + 3n + 8$

(s) $9 + 6a + 7 - 8 - 2a$

(t) $7m + 2n + 6m - 2n - 13m$

2. Write an expression for the perimeter of this triangle.



3. Simplify the following algebraic expressions.

(a) $a \times b$

(b) $6 \times m$

(c) $4 \times x \times y$

(d) $3 \times n \times 4$

(e) $2m \times n$

(f) $5a \times 6b$

(g) $4 \times x \times y$

(h) $3 \times n \times 4$

(i) $3m \times 2 \times 5n$

4. (a) Find an expression for the area of this rectangle.

(b) A bag of wheat weighs w kg. Write an expression for the weight of n bags of wheat.

Master Maths 7 Worksheet 36
Simplifying Algebraic Expressions 2

36

Name: _____

1. Simplify the following algebraic expressions.

(a) $m \times m \times m$

(b) $a \times a \times a \times a \times a \times a$

(c) $3 \times n \times 4 \times n$

(d) $2 \times y \times 5 \times y \times y$

(e) $3 \times p \times 2 \times p \times 2 \times p \times 2$

(f) $7c \times 3c \times 2c \times c$

(g) $a \times a \times a \times b \times b$

(h) $x \times y \times y \times x \times y \times y$

(i) $m \times n \times m \times n \times n \times m \times m$

(j) $2a \times b \times 6a \times 5b \times a$

(k) $5 \times m \times n \times 2m \times 4n$

(l) $x \times 2y \times 3x \times x \times 5x$

2. Simplify the following algebraic fractions.

(a) $\frac{12x}{4}$ (b) $\frac{18a}{2}$ (c) $\frac{24m}{6}$

(d) $\frac{8n}{18}$ (e) $\frac{12c}{24}$ (f) $\frac{28}{16m}$

3. Simplify the following algebraic fractions.

(a) $\frac{6n}{18n}$ (b) $\frac{36a}{20a}$ (c) $\frac{15ab}{10a}$

(d) $\frac{3xy}{24x}$ (e) $\frac{12a}{36ab}$ (f) $\frac{18xyz}{12xy}$

(g) $\frac{16mp}{24mnp}$ (h) $\frac{15agk}{20abg}$ (i) $\frac{18pqr}{16qrs}$

(j) $\frac{6x^4}{4x}$ (k) $\frac{8m^3}{16m^5}$ (l) $\frac{15n^6}{25n^8}$

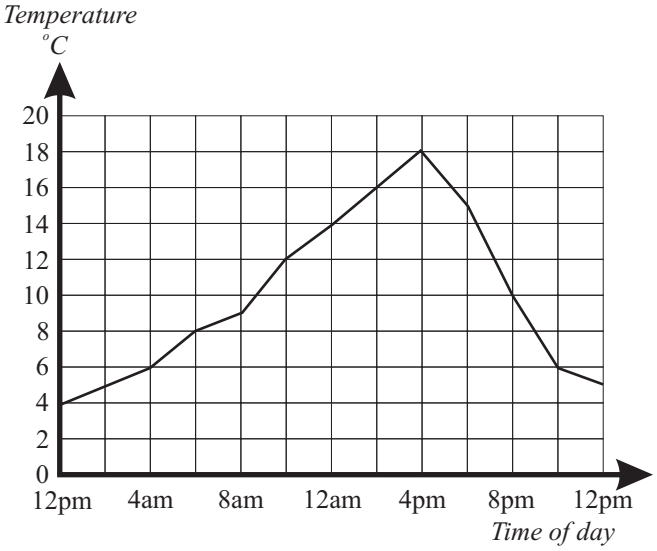
(m) $\frac{6x^2y^3}{18xy}$ (n) $\frac{8m^5n^2}{4m^6n}$ (o) $\frac{24x^7y^6}{30x^4y^9}$

Master Maths 7 Worksheet 37
Interpreting Graphs 1

37

Name: _____

1. The graph below shows the temperature over a 24 hour period for a town.
Use this line graph to answer the questions below.



(a) What was the highest temperature reached in this period?

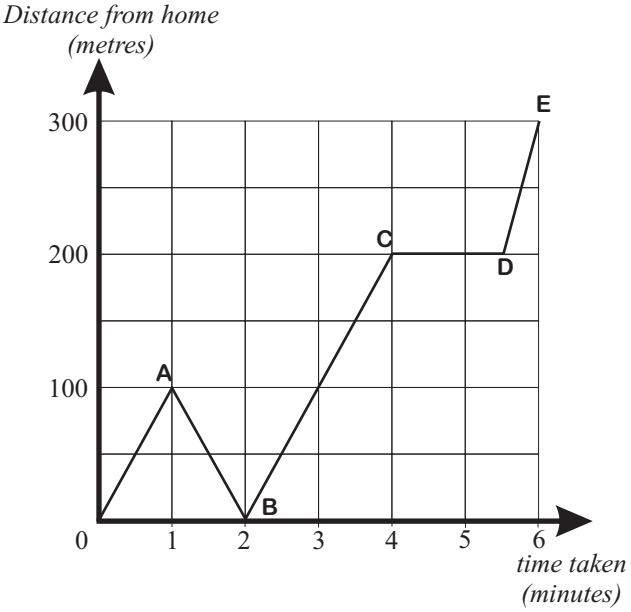
(b) What was the lowest temperature reached in this period?

(c) What was the temperature at 4am?

(d) What was the temperature at 6pm?

(e) At what times was the temperature 12°C?

2. The graph below represents the distance and the time for Maree to walk to school from home.



(a) How far is the school from Maree's home?

(b) How long did it take Maree to get to school?

(c) What do you think probably happened in the following sections of the graph?

(i) A to B _____

_____

(ii) C to D _____

_____

(iii) D to E _____

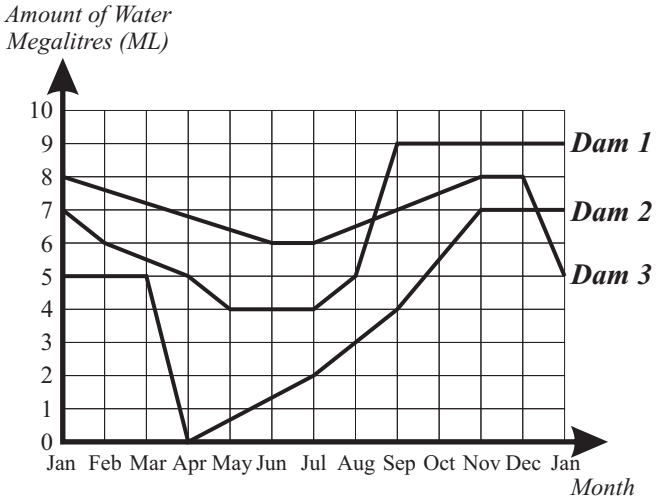
_____

Master Maths 7 Worksheet 38
Interpreting Graphs 2

38

Name: _____

1. The graph below shows the amount of water in three dams on a farming property. The amount of water was recorded at the ***start of each month*** for a year.



(a) What was the total amount of water in the dams at the ***start*** of the year? _____

(b) Which two dams were used for irrigating the farm in January? _____

(c) Which dam was used for irrigating the farm in December? _____

(d) Which dam was emptied to be dug out? _____

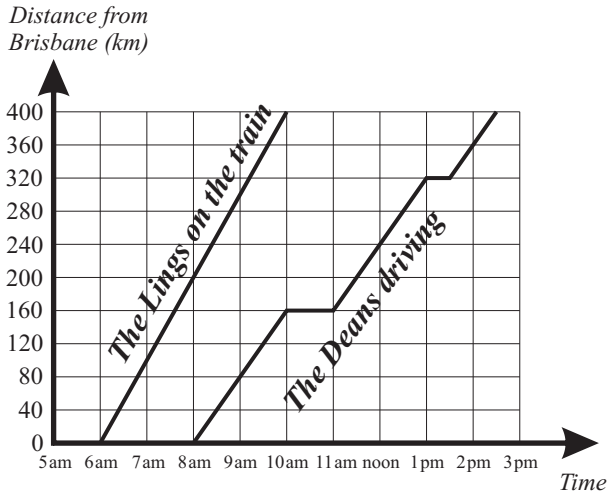
(e) Which month was this dam emptied? _____

(f) At the beginning of which month were all three dams full? _____

(g) What was the amount of water in the dams when they were full? _____

(h) Which is the largest dam? _____

2. The Ling and the Dean families travelled from Brisbane to Coffs Harbour, a distance of 400 km, for a holiday.
The Lings travelled by train and the Deans drove their car.
The graph below shows the distance, *d* (in km), the families were from Brisbane and the time of day.



(a) What time did each family leave Brisbane?

Lings _____ ***Deans*** _____

(b) What time did each family arrive at Coffs Harbour?

Lings _____ ***Deans*** _____

(c) The Deans stopped twice. The first stop was at Byron Bay and the second at Grafton. At what times did they have their stops?

Byron Bay	***Grafton***

(d) How long did they stop at each town?

Byron Bay	***Grafton***

(e) What was the speed of each (km per hour)?

Train	***Car***

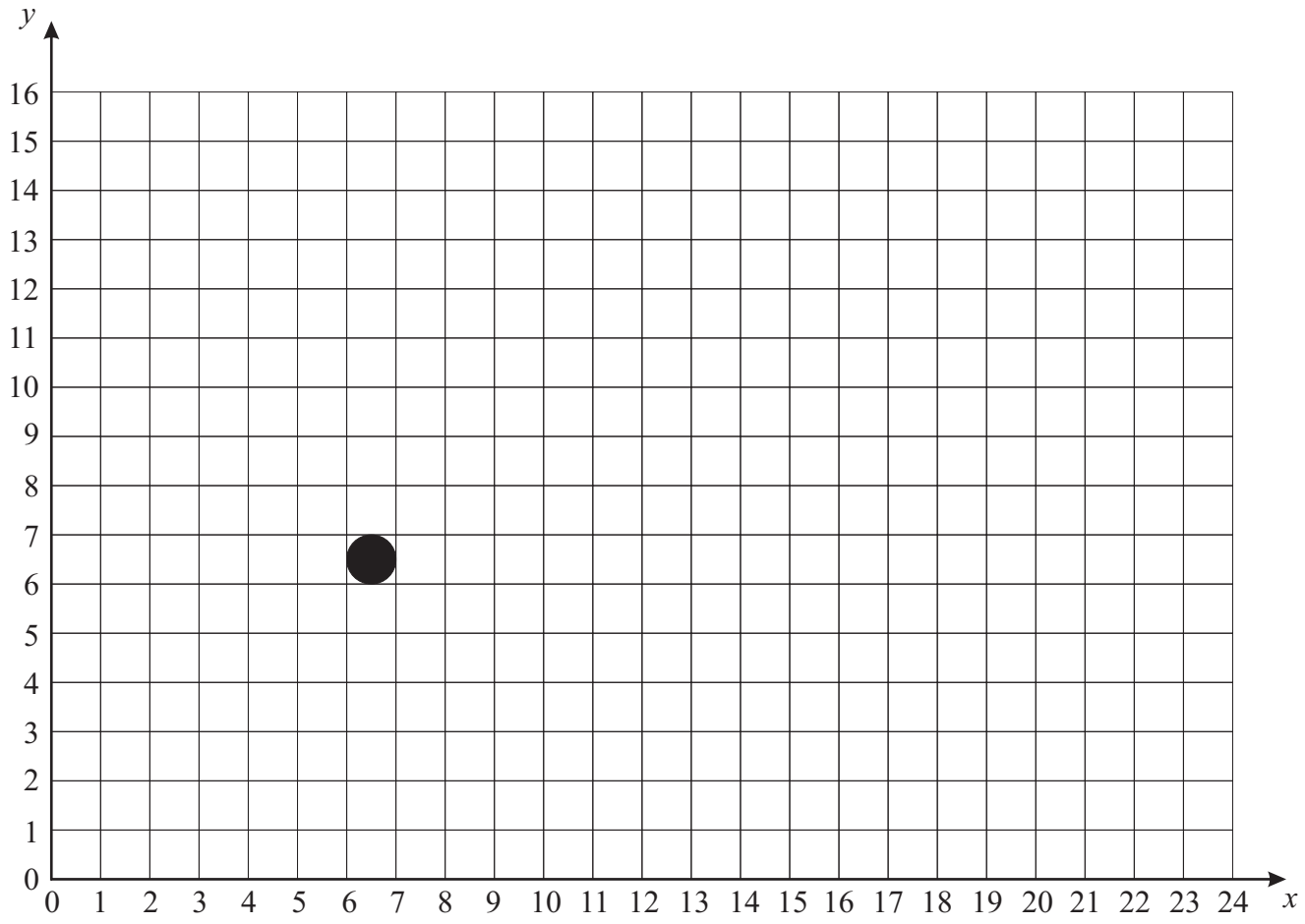
Master Maths 7 Worksheet 39
Cartesian Plane 1

39

Name: _____

Plot the following points and connect them with a smooth curve in the order they are plotted.

(8,5) (6,$3\frac{1}{2}$) (5,3) (3,3) (2,4) (3,6) ($3\frac{1}{2}$,$6\frac{1}{2}$) (4,8) (5,9) (6,10) (8,10) (9,11) (11,12) (12,12) (13,14) (15,15) (14,12) (17,11) (19,9) (20,7) (21,6) (22,4) (19,5) (17,5) ($18\frac{1}{2}$,$6\frac{1}{2}$) (18,7) ($16\frac{1}{2}$,7) (15,6) (16,5) (17,3) (15,$3\frac{1}{2}$) (14,4) (11,3) (9,3) (8,2) ($7\frac{1}{2}$,$3\frac{1}{2}$) (6, $3\frac{1}{2}$)

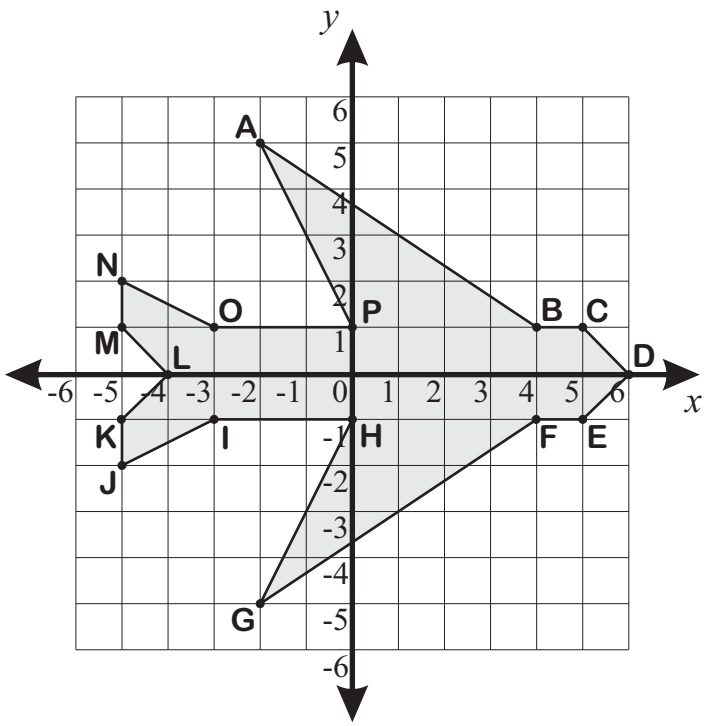


Master Maths 7 Worksheet 40
Cartesian Plane 2

40

Name: _____

1. List the coordinates of the points shown on this Cartesian plane.



A = **I** =

B = **J** =

C = **K** =

D = **L** =

E = **M** =

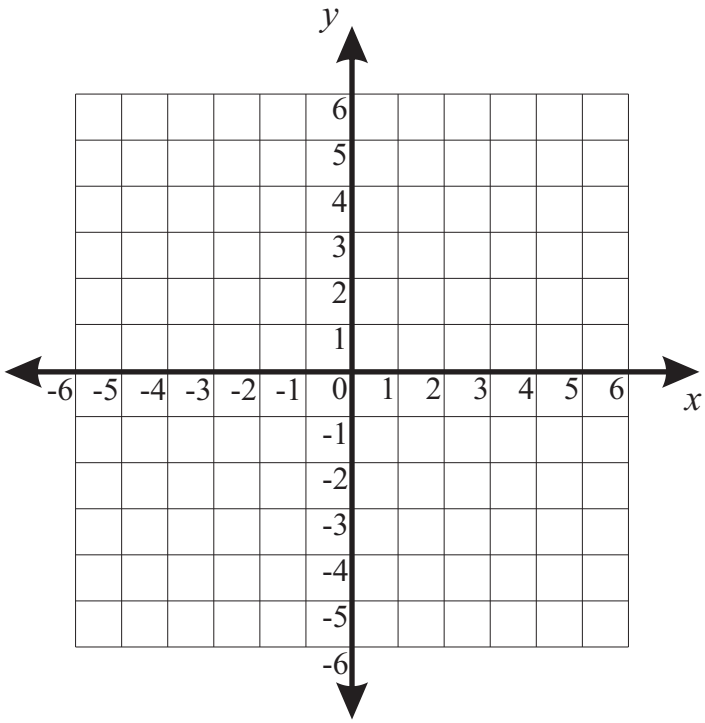
F = **N** =

G = **O** =

H = **P** =

2. Plot and connect the following points on the Cartesian plane below.

(0,-5) (-2,0) (0,5) (-2,5) (-3,2)
(-4,5) (-6,5) (-4,0) (-6,-5) (-4,-5)
(-3,-2) (-2,-5) (6,-5) (6,5) (4,5)
(4,2) (3,2) (3,5) (1,5) (1,0)
(4,0) (4,-3) (0,-3) (0,-5)



Master Maths 7 Worksheet 41
Straight Line Graphs

41

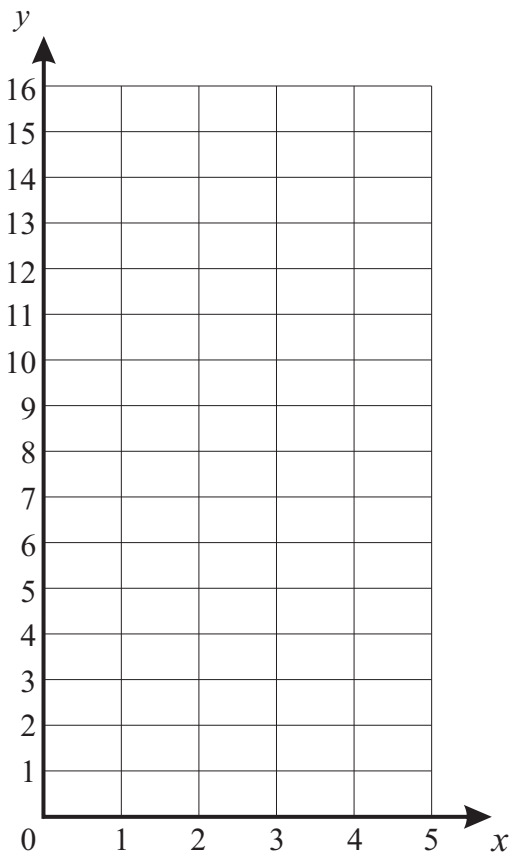
Name: _____

1. (a) Complete the table below for the following relationship.

$y = 3x + 1$

x	0	1	2	3	4	5
y						

(b) Plot these points on the axes below and connect them.



2. (a) Complete the table below for the following relationship.

$y = 10 - 2x$

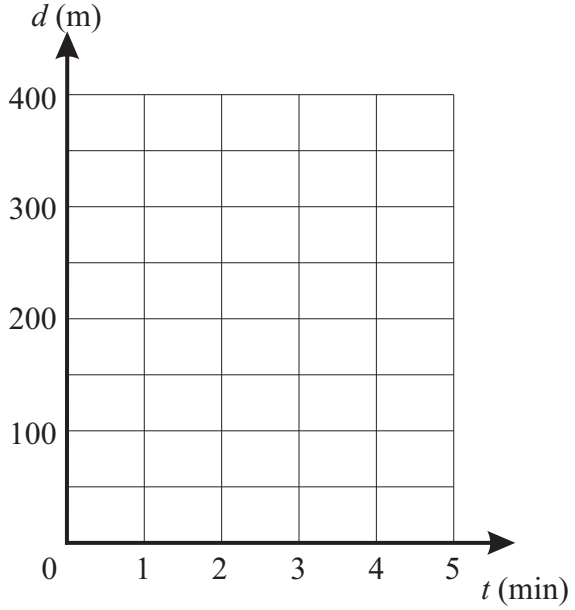
x	0	1	2	3	4	5
y						

(b) Plot these points on the axes above and connect them.

3. The table below records the distance (d), in metres, versus time (t), in minutes, for a person walking.

t (min)	0	1	2	3	4	5
d (m)	0	80	160	240	320	400

(a) Plot this information on the graph below.



(b) Complete the equation below for this relationship.

$d =$

(c) How far would this person walk in 30 minutes?

(d) How long would it take the person to walk 20 km?

Master Maths 7 Worksheet 42
Length 1

42

Name: _____

1. Complete the following sentences by writing the appropriate unit in the gap.
(millimetres, centimetres, metres, kilometres)

(a) In the school high jump competition

Jacques jumped 1.5 ☐

(b) At the weekend Fred and his friends rode

their bikes 15 ☐

(c) Last month Kaye's hair

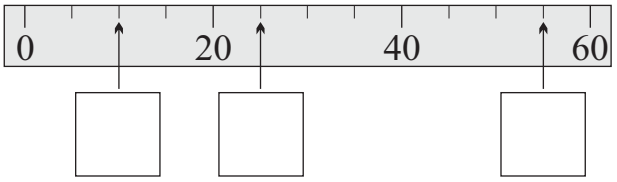
grew 18 ☐

(d) Horacio had a pet blue-tongue lizard that

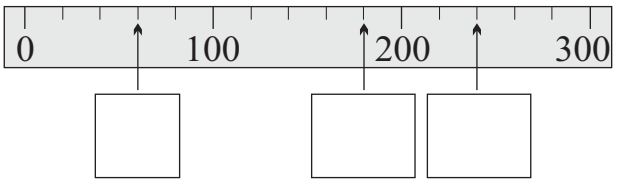
was 25 ☐ long.

2. Write the measurements shown on these scales.

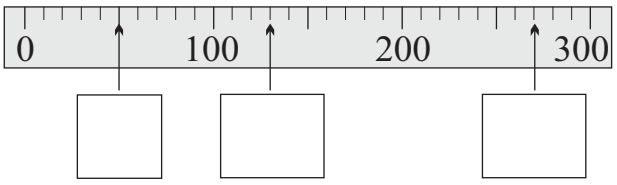
(a)



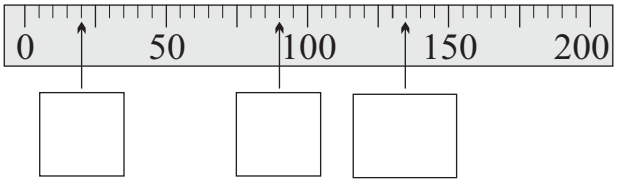
(b)



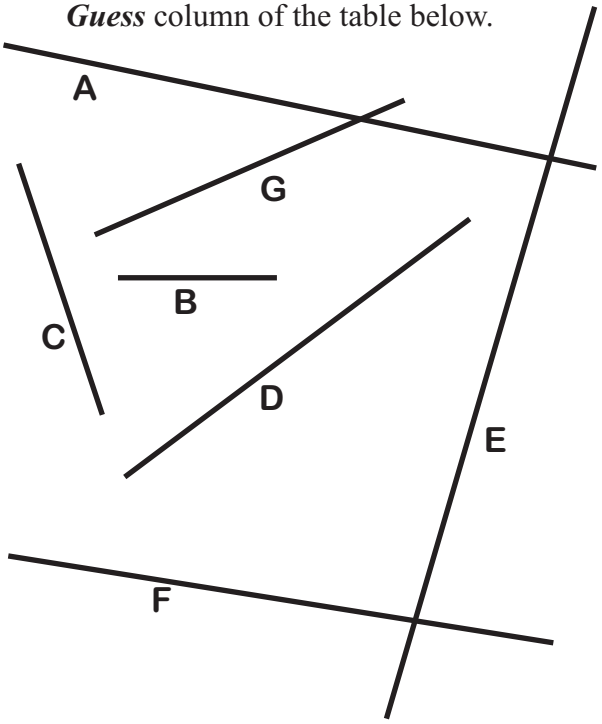
(c)



(d)



3. (a) ***Guess*** the length (in ***millimetres***) of the following lines. Write your guesses in the ***Guess*** column of the table below.



(b) Measure the length of each line and write these in the ***Length*** column of the table.
(c) Find the difference between your guess and the actual length of each line. Write these differences in the ***Error*** column.
(d) Add all the errors and write this total at the bottom of the ***Error*** column.
(e) If this total is less than 70 you have guessed well.

Line	Guess (mm)	Length (mm)	Error (mm)
A			
B			
C			
D			
E			
F			
G			
		Total	

Master Maths 7 Worksheet 43
Length 2 - Conversions

43

Name: _____

1. Convert the following lengths to the units shown.

(a) 3 m = _____ cm

(b) 7000 mm = _____ m

(c) 0.8 km = _____ m

(d) 850 mm = _____ cm

(e) 730 cm = _____ m

(f) 63 cm = _____ mm

(g) 82 000 m = _____ km

(h) 75 cm = _____ m

(i) 568 mm = _____ cm

(j) 0.3 m = _____ mm

(k) 4.7 m = _____ cm

(l) 0.0425 km = _____ m

(m) 6.5 cm = _____ m

2. Convert the following lengths to the units shown.

(a) 3 m 25 cm = _____ cm

(b) 6 cm 8 mm = _____ mm

(c) 12 km 350 m = _____ km

(d) 9 m 9 cm = _____ cm

(e) 10 m 60 mm = _____ m

3. Round the following lengths to the nearest metre.

(a) 5 m 70 cm _____

(b) 6.73 m _____

(c) 8 m 93 mm _____

(d) 3 m 9 cm _____

(e) 12 m 439 mm _____

(f) 768 cm _____

4. Dave is paving a walkway that is 1.8 metres wide. He has chosen a paving block that is square with a side length of 300 mm.

(a) How many of the paving blocks will fit across the walkway?

_____

(b) The walkway is 9 metres long. How many paving blocks will be needed to fully pave the walkway?

_____

5. Jack measured his pace to be 55 cm. He walked to school and counted 654 paces.
How many metres is the school from Jack's house?

_____

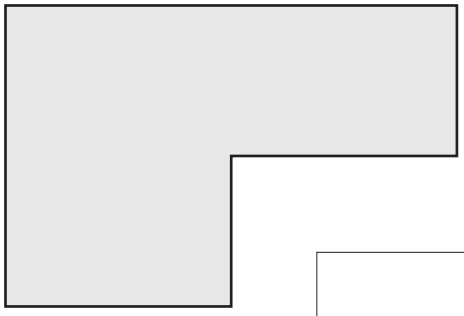
Master Maths 7 Worksheet 44
Perimeter

44

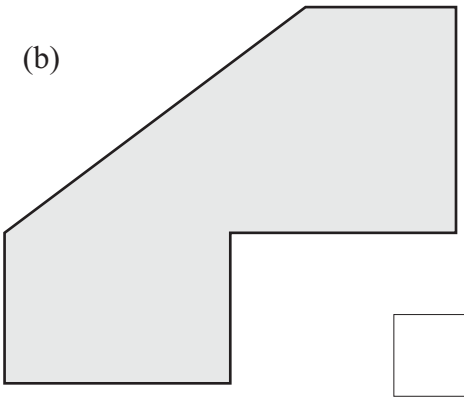
Name: _____

1. Use a ruler to measure the lengths (in cm) of the sides of the following shapes and state the perimeter of each shape.

(a)



(b)



2. Find the perimeter of the following shapes.

(a) A square with side length 8 cm.

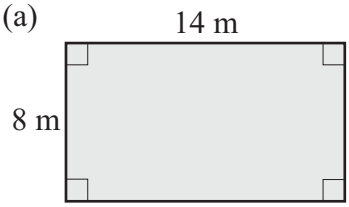
(b) A rectangle with side lengths 10 m and 7 m.

(c) A regular hexagon with side length 15 cm.

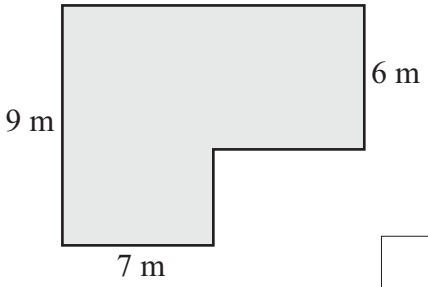
(d) A regular octagon with side length 2.5 m.

3. Find the perimeter of the following shapes.

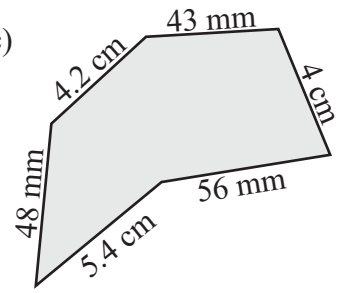
(a)



(b)



(c)



4. (a) The side length of a rectangular paddock is 350 metres. The perimeter is 1200 metres. What is the width of the paddock?

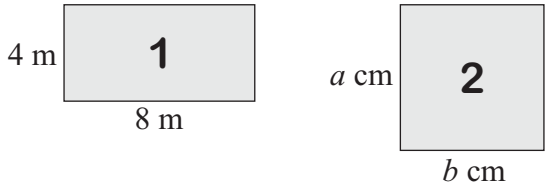
(b) The perimeter of a rectangle is 180 cm. The length is 6 cm longer than the width. How long is the rectangle?

Master Maths 7 Worksheet 45
Area 1

45

Name: _____

1.



(a) The ***perimeter*** of rectangle 1 is:

_____ m

(b) The ***perimeter*** of rectangle 2 is:

_____ cm

(c) The ***area*** of rectangle 1 is:

_____ m^2

(d) The ***area*** of rectangle 2 is:

_____ cm^2

2. Draw two rectangles, each with a perimeter of 14 cm.

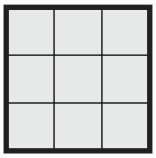
Calculate the ***area*** of each of your rectangles.

Area of rectangle 1 _____ cm^2

Area of rectangle 2 _____ cm^2

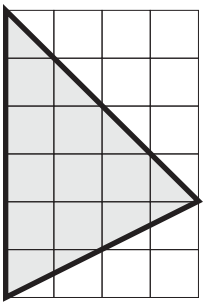
3. Find the ***area*** of these shapes if each small square represents one square centimetre.

(a)



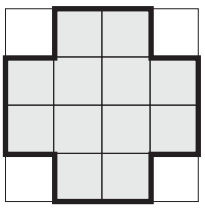
_____ cm^2

(b)



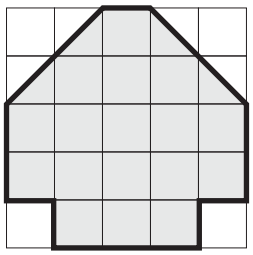
_____ cm^2

(c)



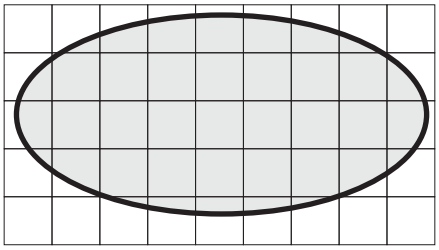
_____ cm^2

(d)



_____ cm^2

4. ***Estimate*** the ***area*** of this shape if each small square represents one square centimetre.



Approximate area _____ cm^2

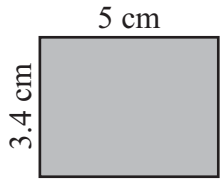
Master Maths 7 Worksheet 46
Area 2

46

Name: _____

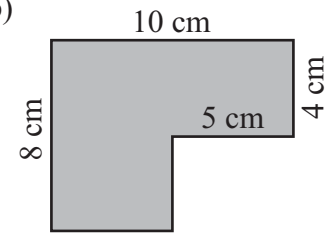
1. Calculate the area of these shapes.

(a)



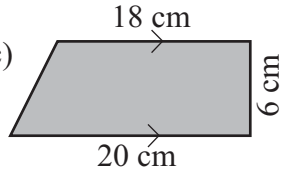
cm^2

(b)



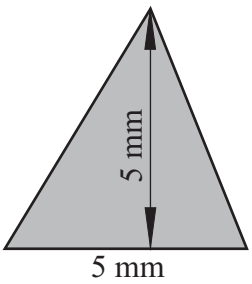
cm^2

(c)



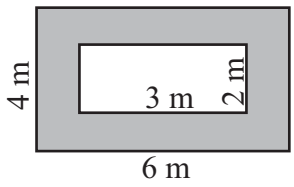
cm^2

(d)



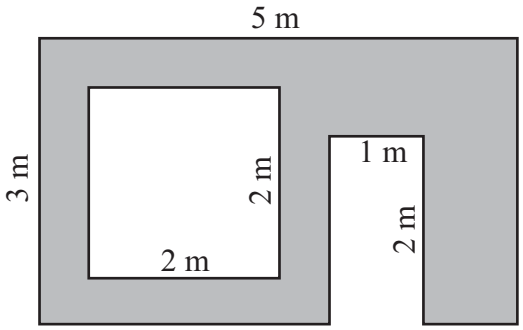
mm^2

2. Calculate the area of this shaded region.



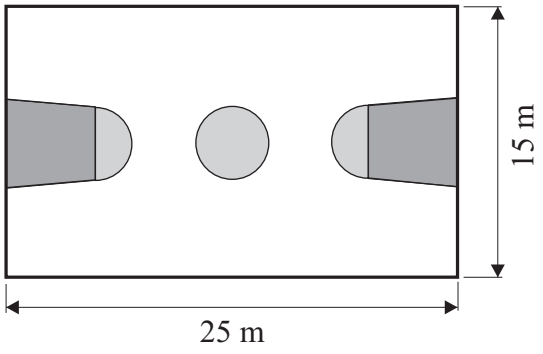
m^2

3. Calculate the area of this shaded region.



m^2

4. Calculate the area of the basketball court shown below.



m^2

Master Maths 7 Worksheet 47
Area 3 - Problem Solving

47

Name: _____

1. Penny wants to make a pen for her rabbits. She has 16 metres of wire mesh that she is going to use to make a rectangular pen.
(a) If the pen is 5 metres long and 3 metres wide, what is the area of the pen?

m^2

(b) Find the length and width of two other pens that she could make using the 16 metres of wire mesh.
Find the area of each of these pens.

	Length	Width	Area
Pen 1			
Pen 2			

2. Terry is going to tile his bathroom floor.
The bathroom is 3 metres long and 2 metres wide.
Tiles cost $50 per square metre.
Find the cost to tile Terry's bathroom floor.

3. Anne wants to plant grass in her backyard.
The yard is 40 m long and 10 m wide and there is a 10 m by 7 m garage in the corner.
A packet of grass seed covers 60 m^2.
How many packets of seed will she need?

packets

4. The cost for advertising space in a newspaper was $2 per square centimetre (cm^2).
Use a ruler to measure the advertisements below and calculate the cost to place them in the newspaper.

(a)

Sally's Dog Washing Service
Anyone wanting to wash Sally's dog please contact 55682459

(b)

Wonted

Help to do homewerk
Carnt pay mutch
Pleese dont tell
Mum or the Teecher
Corl Bart
9%67*lll

(c) Think of your own advertisement.
Draw it below and work out its cost.

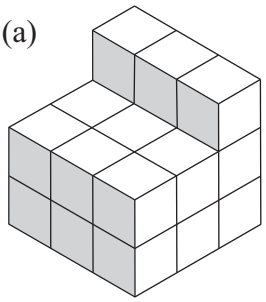
Master Maths 7 Worksheet 48
Volume 1

48

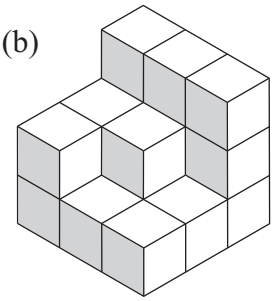
Name: _____

1. How many small cubes are in each of the following objects?

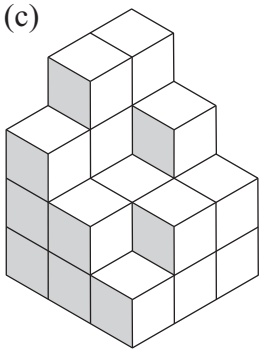
(a)



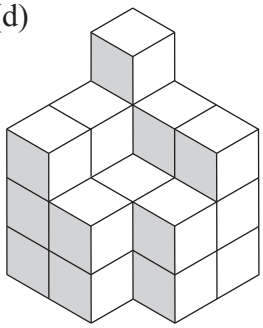
(b)



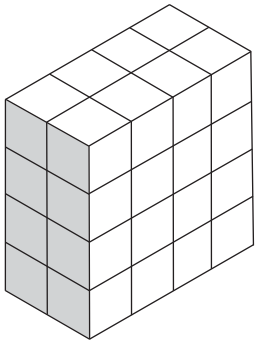
(c)



(d)



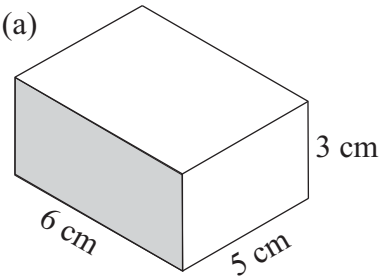
2. (a) How many small cubes are in this object?



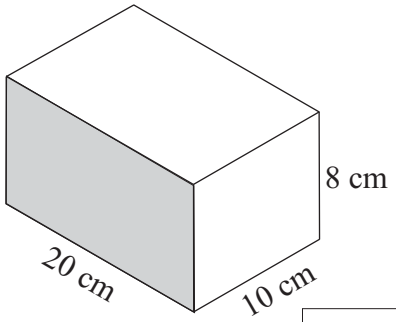
(b) If each of the small cubes in this object is 1 cm^3, what is the volume of this object?

3. Find the volume of the following rectangular prisms.

(a)



(b)

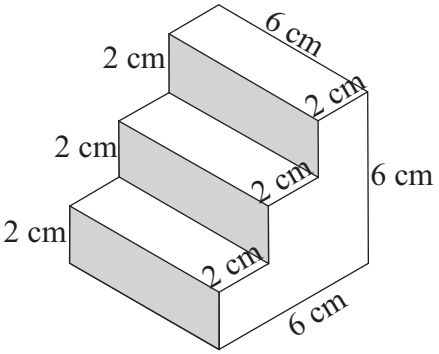


4. Find the volume of the rectangular prisms with the following dimensions.

(a) 7 m long, 4 m wide, 3 m high

(b) 30 m long, 20 m wide, 15 m high

5. Find the volume of the object below.



Master Maths 7 Worksheet 49
Volume 2

49

Name: _____

1. Complete the following conversions.

(a) 3 litres = ____ cm^3

(b) 7000 cm^3 = ____ litres

(c) 0.8 litres = ____ cm^3

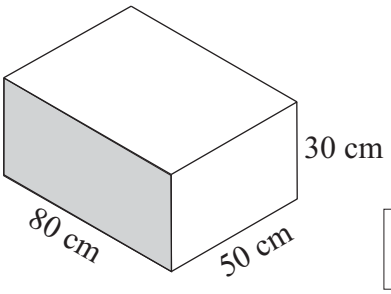
(d) 5 m^3 = ____ litres

(e) 4.9 litres = ____ cm^3

(f) 7.8 m^3 = ____ litres

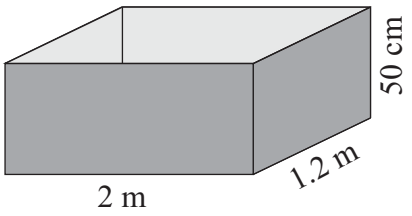
(g) 82 000 cm^3 = ____ litres

2. Find the volume (in ***litres***) of the following object.



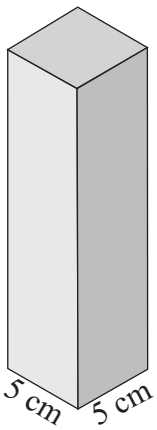
3. A fish tank is 90 cm long, 40 cm wide and 65 cm high.
The tank is empty.
How many litres of water are needed so that the water level will be 5 cm from the top of the tank?

4. (a) How many cubic metres of water are needed to fill this container?



(b) How many 10 litre buckets of water would be needed to fill this container?

5. A rectangular prism is to be made to have a volume of exactly one litre. The base is to be a square with side length 5 cm.
Find the height of the prism.

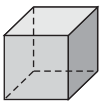


Master Maths 7 Worksheet 50
3 Dimensional Objects

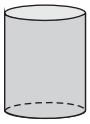
50

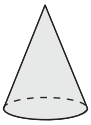
Name: _____

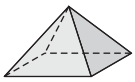
1. Find the names of the following objects.

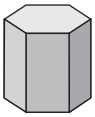


Name

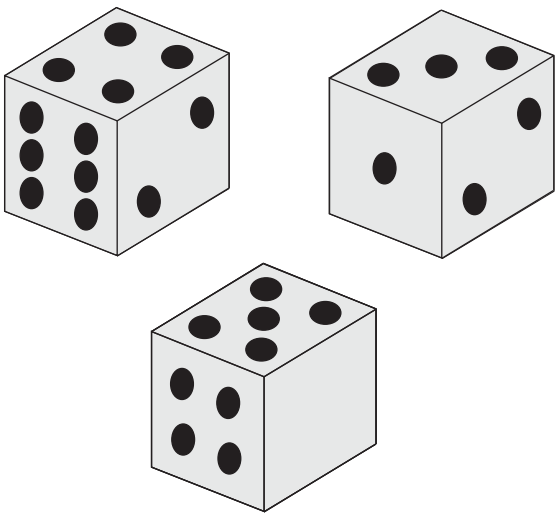




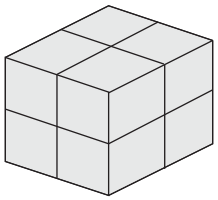




2. Three different views are shown of the ***same*** die.
Fill in the missing dots on the blank face.

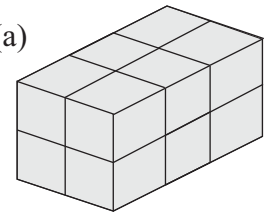


3. There are 8 small cubes in this object.



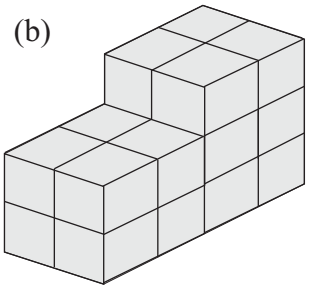
How many small cubes are in the two objects below?

(a)



_____ cubes

(b)



_____ cubes

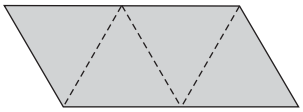
4. If the object in question 3(a) was to be painted black, how many of the small cubes would have:

(a) 3 black faces? _____

(b) 2 black faces? _____

(c) 1 black face? _____

5. If the shape here was cut out and folded on the dotted lines what is the name of the solid object that would be formed?



_____

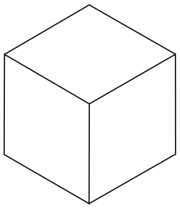
Master Maths 7 Worksheet 51
Isometric Drawings 1

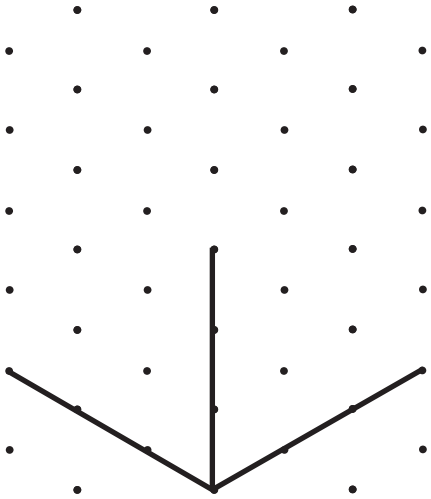
51

Name: _____

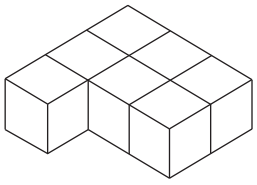
1. Redraw the following objects on the isometric dots provided.

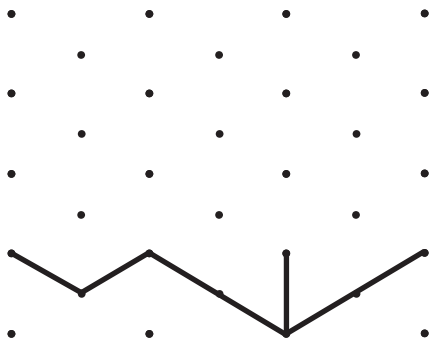
(a)



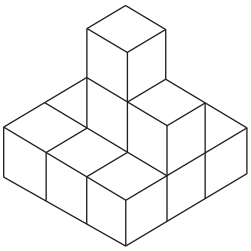


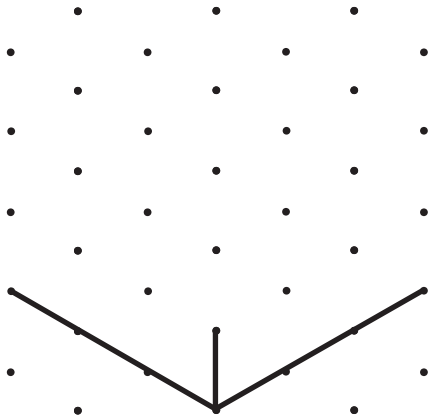
(b)



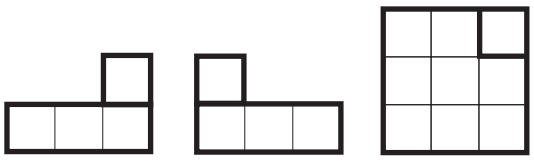


1. (c)

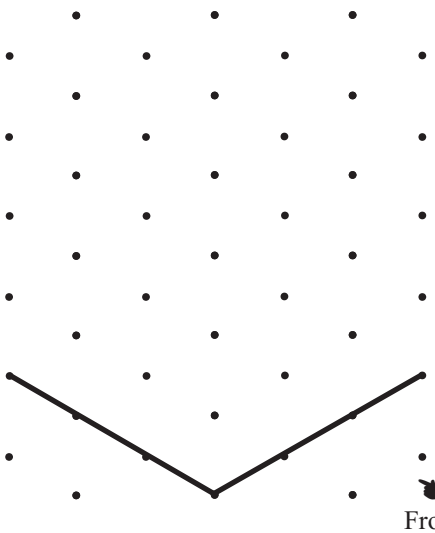




2. The front, side and top views of an object are drawn below.
Draw the object on the isometric dots provided.



Front view ***Side view*** ***Top view***



Side view

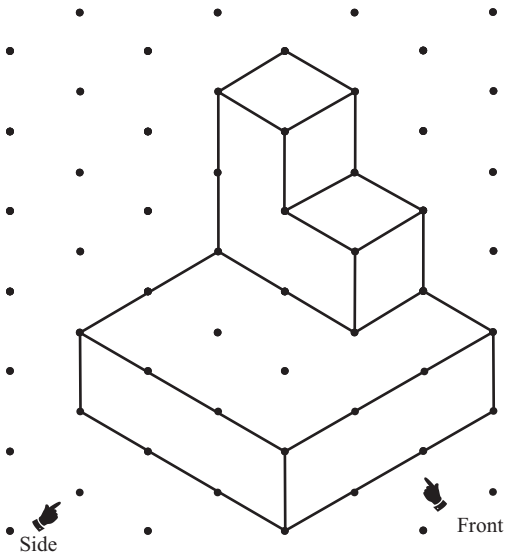
Front view

Master Maths 7 Worksheet 52
Isometric Drawings 2

52

Name: _____

1. An object is drawn on the isometric dots below.

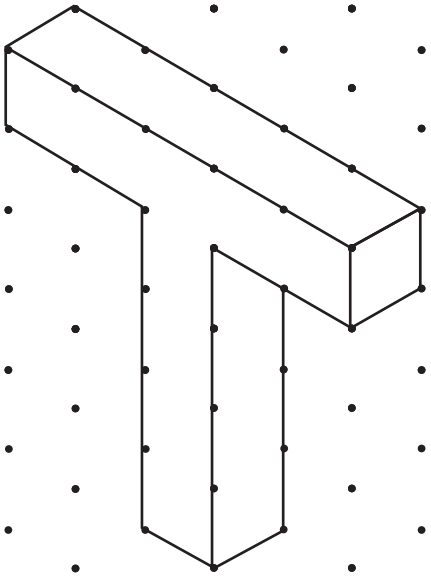


Sketch the front, side and top views of this object in the spaces below.

Front view ***Side view***

Top view

2. The letter **T** is drawn on the dots below.



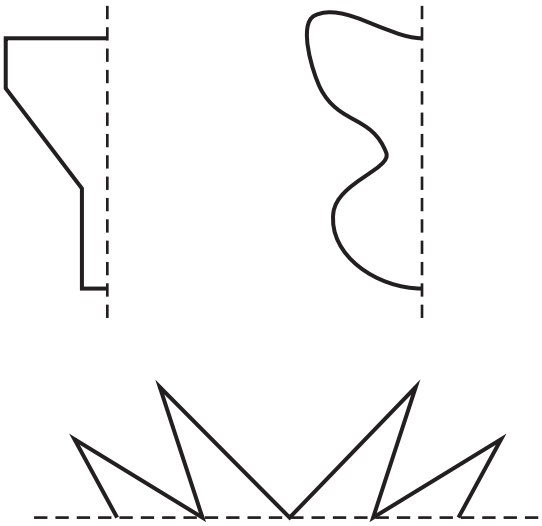
On the dots provided below draw the letters **F** and **H**.

Master Maths 7 Worksheet 53
Symmetry

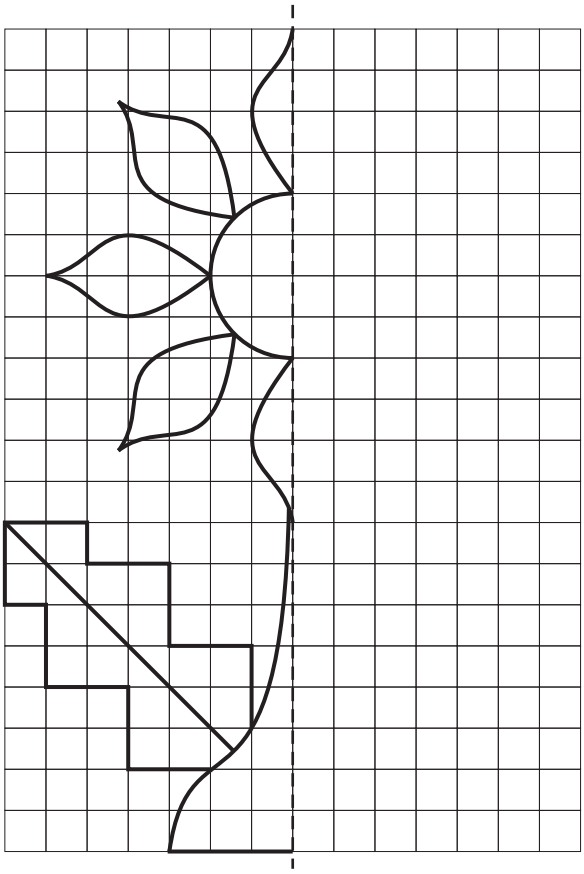
53

Name: _____

1. Complete these symmetrical shapes by drawing the other half. Colour in the shapes.



2. Complete and colour in the symmetrical shape below.



3. (a) Complete the other half of the symmetrical letters below. The completed letters will spell words.

(b) Do these words have a ***horizontal*** or ***vertical*** axis of symmetry?

(c) Write two other words that have the same axis of symmetry.

_____

4. (a) Complete the other half of the symmetrical letters below. The completed letters will spell words.

(b) Do these words have a ***horizontal*** or ***vertical*** axis of symmetry?

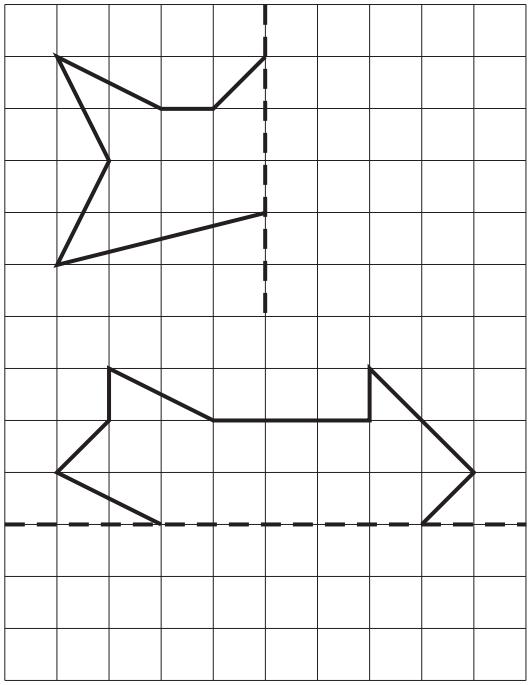
(c) Write two other words that have the same axis of symmetry.

Master Maths 7 Worksheet 54
Reflections

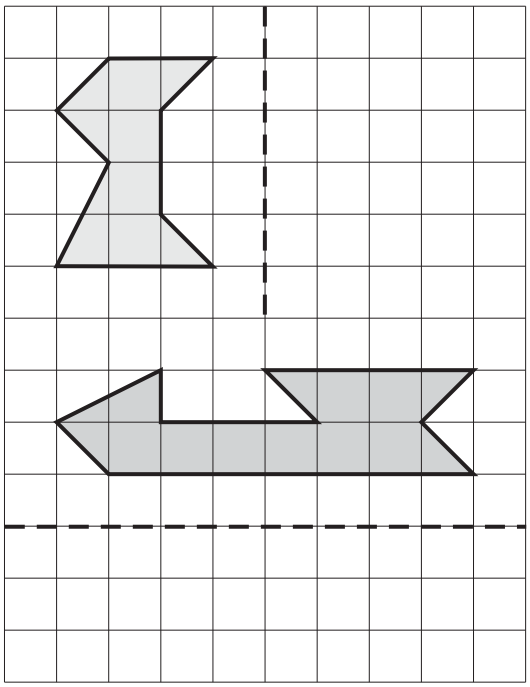
54

Name: _____

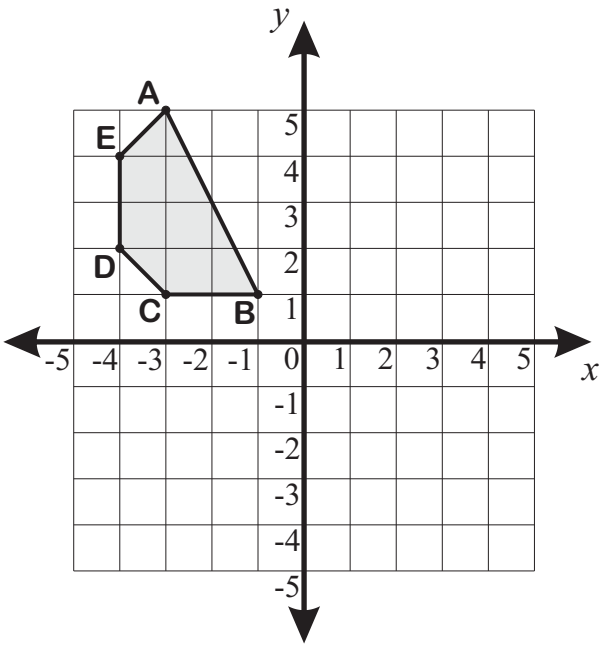
1. Complete the symmetrical shapes below by drawing the other half using the lines of symmetry shown.



2. Draw the reflection of the shapes below after they have been reflected about the lines shown.



3. For the shape shown on this Cartesian plane answer the questions below.



(a) List the coordinates of the vertices of the shape.

A = (,) **B** = (,)

C = (,) **D** = (,)

E = (,)

(b) Draw the reflection of the shape after it has been reflected about the ***y*-axis**.

(c) List the coordinates of the vertices of this reflected shape.

A' = (,) **B'** = (,)

C' = (,) **D'** = (,)

E' = (,)

(d) Draw the reflection of the original shape after it has been reflected about the ***x*-axis**.

(e) List the coordinates of the vertices of this reflected shape.

A" = (,) **B"** = (,)

C" = (,) **D"** = (,)

E" = (,)

Master Maths 7 Worksheet 55
Translations

55

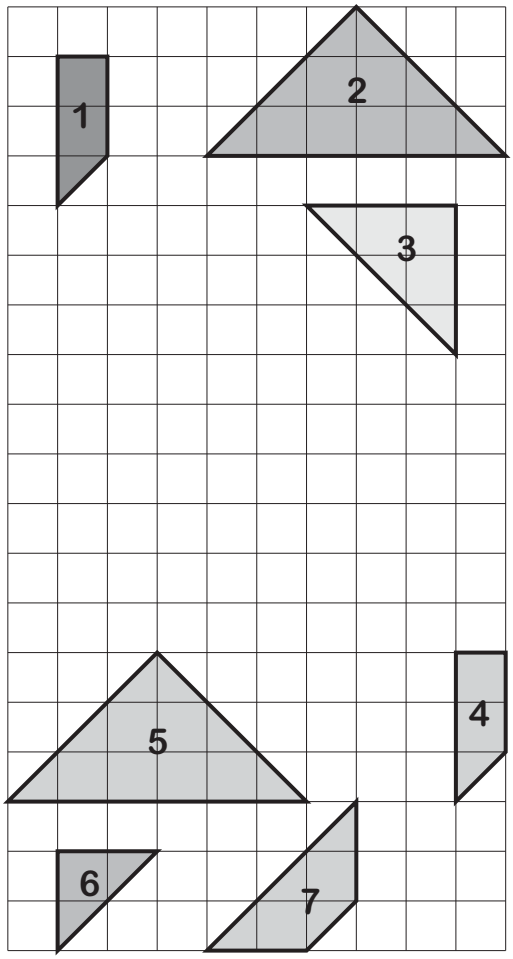
Name: _____

1. Translate the shapes on the grid below by the amounts shown in the table using the following abbreviations. Redraw the shapes after being translated to reveal an object.

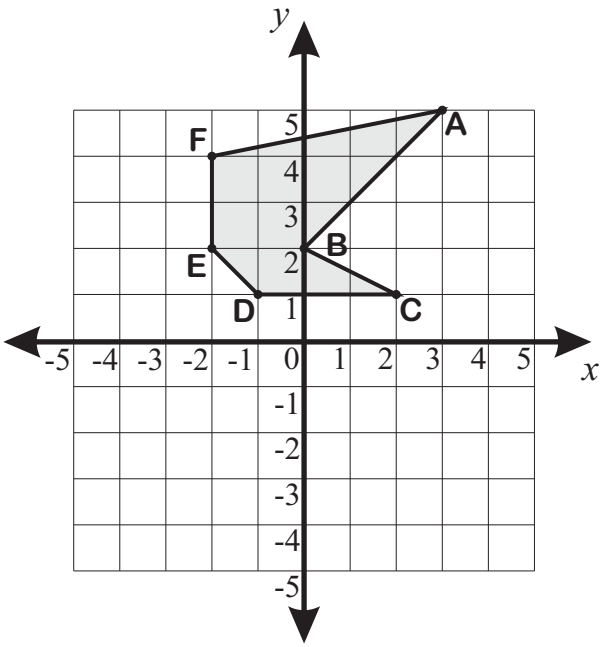
R = right, **L** = left, **U** = up, **D** = down

Example:
R1, D3 = right one unit and down three units

Shape	*Translation*
1	**R1, D8**
2	**L1, D6**
3	**L1, D5**
4	**L5, U8**
5	**R2, U4**
6	**R2, U8**
7	**L3, U10**



2. For the shape shown on this Cartesian plane answer the questions below.



(a) List the coordinates of the vertices of the shape.

A = (,) **B** = (,)
C = (,) **D** = (,)
E = (,) **F** = (,)

(b) Draw the shape after it has been translated two units to the left and five units down.

(c) List the coordinates of the vertices of this translated shape.

A' = (,) **B'** = (,)
C' = (,) **D'** = (,)
E' = (,) **F'** = (,)

3. Which of the following translations would move a point with coordinates (-2, 5) to (4, -6)?

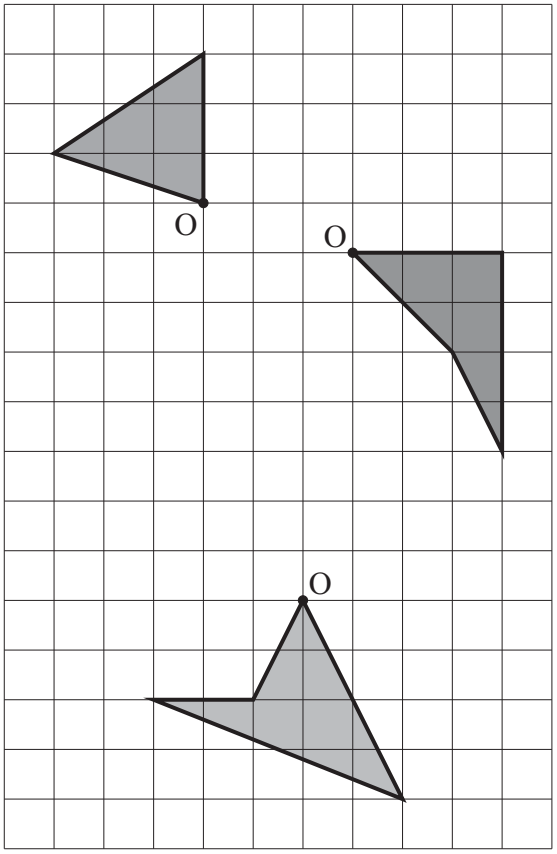
A (R11, D6) **B** (L6, D11) **C** (L6, U11)
D (R6, U11) **E** (R6, D11) **F** (R2, D11)

Master Maths 7 Worksheet 56
Rotations

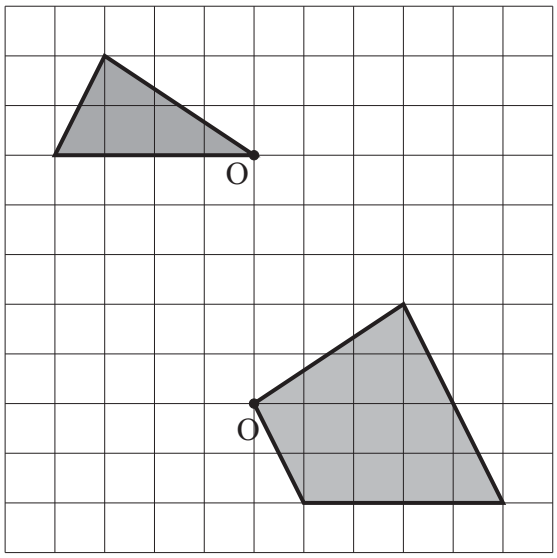
56

Name: _____

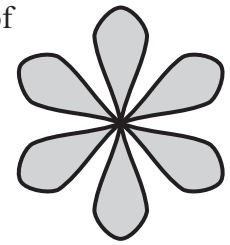
1. Redraw the following shapes after they have been rotated 90° ***clockwise*** about O.



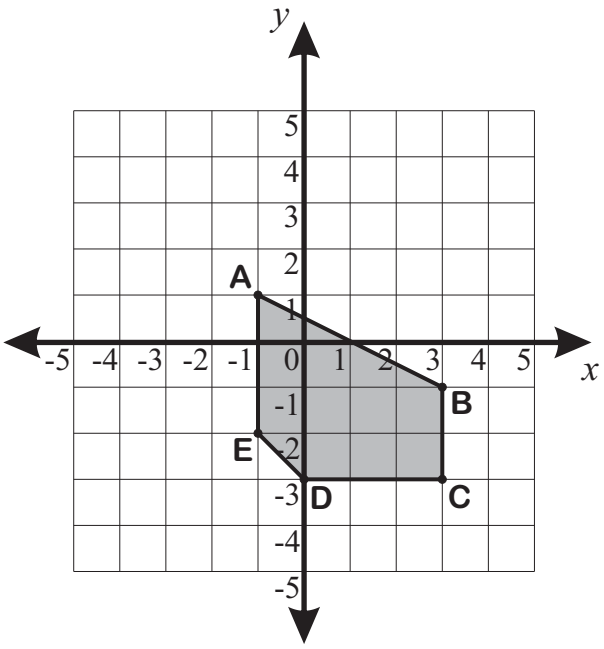
2. Redraw the following shapes after they have been rotated 180° ***clockwise*** about O.



3. What is the ***minimum*** angle of ***clockwise*** rotation for this shape to appear the same?



4. For the shape shown on this Cartesian plane answer the questions below.



(a) List the coordinates of the vertices of the shape.

A = (,) **B** = (,)

C = (,) **D** = (,)

E = (,)

(b) Draw the shape after it has been rotated 90° ***anticlockwise*** about **A**.

(c) List the coordinates of the vertices of this rotated shape.

A' = (,) **B'** = (,)

C' = (,) **D'** = (,)

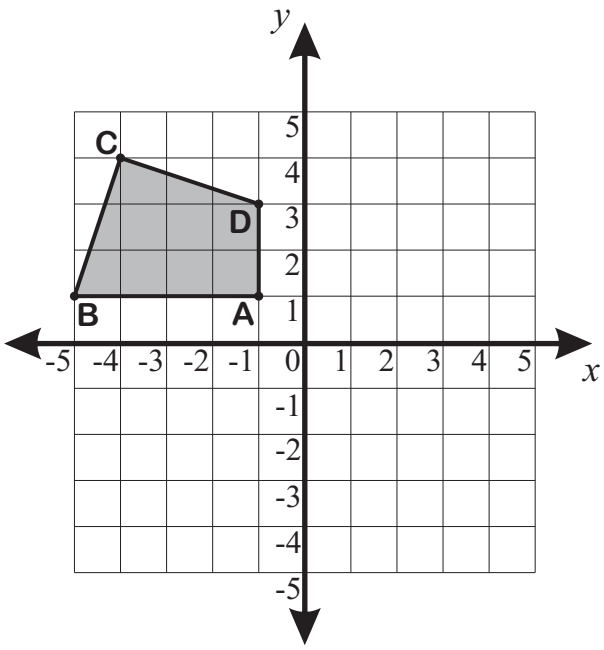
E' = (,)

Master Maths 7 Worksheet 57
Combined Transformations

57

Name: _____

1. For the shape shown on this Cartesian plane answer the questions below.



(a) List the coordinates of the vertices of the shape.

A = (,) **B** = (,)

C = (,) **D** = (,)

(b) Draw the shape after it has been rotated 180° about **A** and then translated two units to the right and two units down.

(c) List the coordinates of the vertices of this moved shape.

A' = (,) **B'** = (,)

C' = (,) **D'** = (,)

(d) State another way of achieving the same transformation.

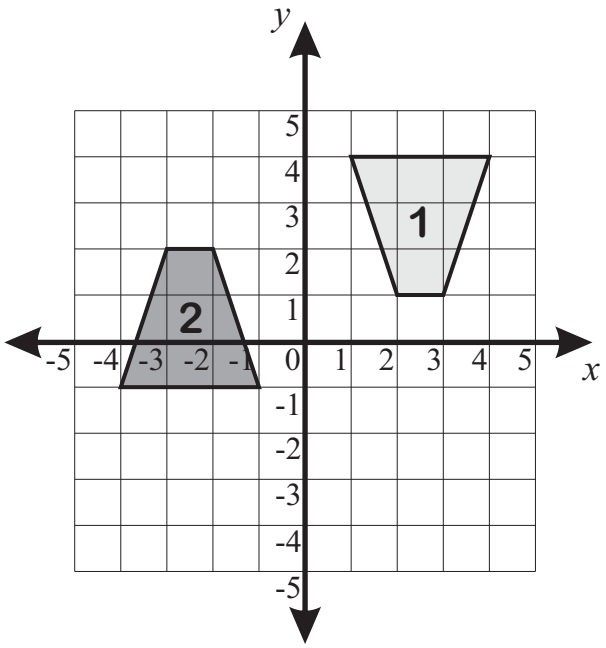
_____

_____

_____

_____

2. Using reflections, translations and/or rotations state two methods that could be used to move the shape shown below from position **1** to position **2**.



Method 1

_____

_____

_____

_____

Method 2

_____

_____

_____

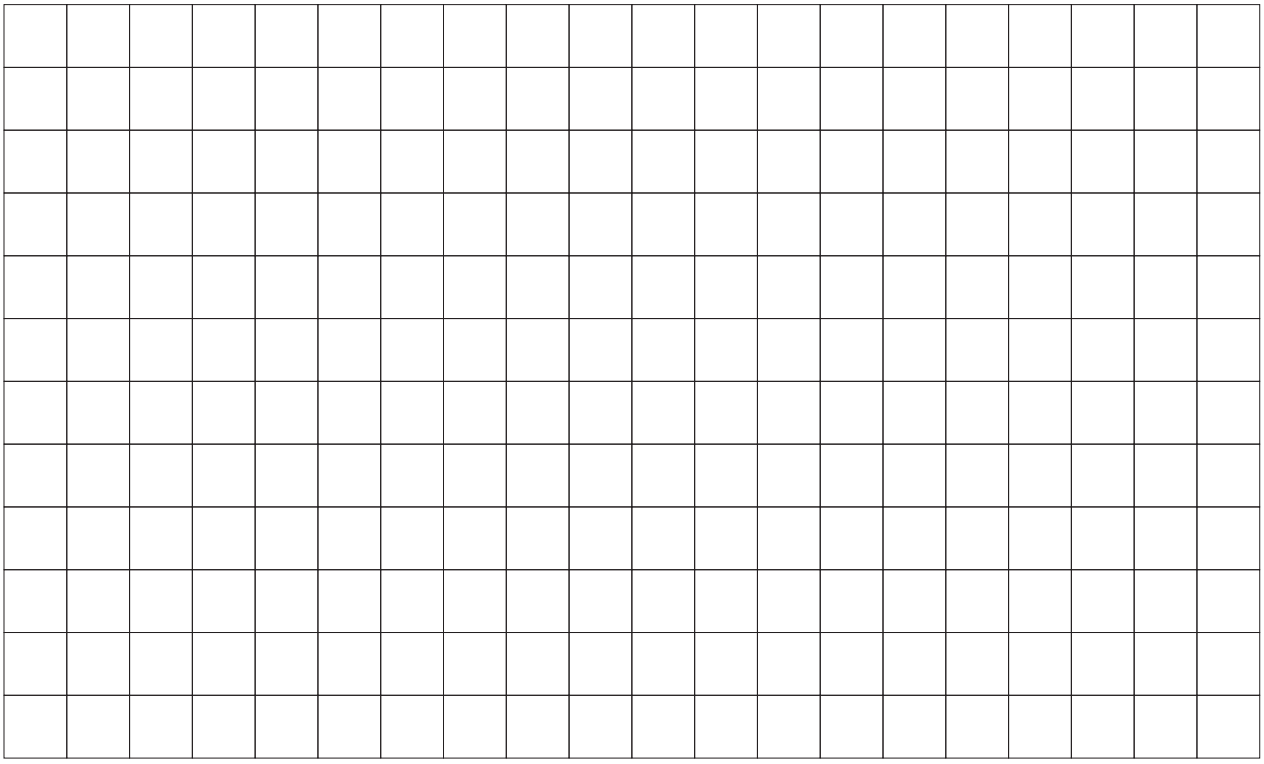
_____

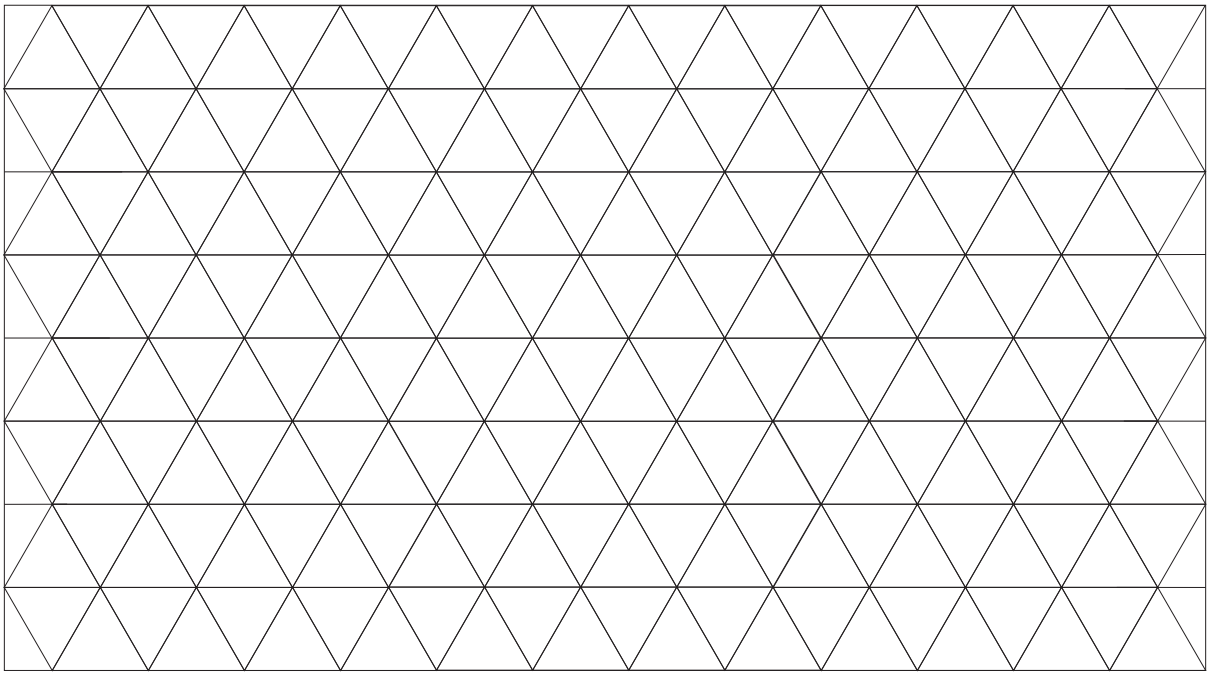
Master Maths 7 Worksheet 58
Tessellations

58

Name: _____

On the grids below create several tessellations.
Be creative with shapes and colours.





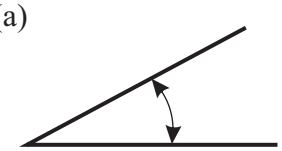
Master Maths 7 Worksheet 59
Measuring Angles

59

Name: _____

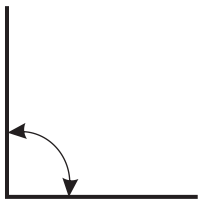
1. Without measuring, circle the best estimate of each angle drawn below.

(a)



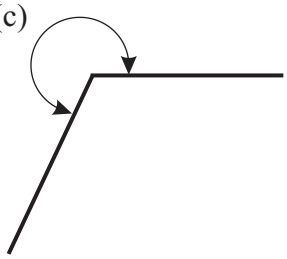
30°	80°
150°	300°

(b)



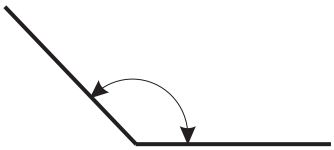
60°	90°
180°	100°

(c)



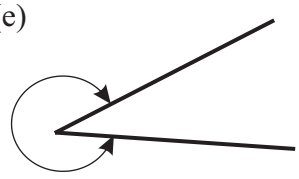
40°	140°
240°	340°

(d)



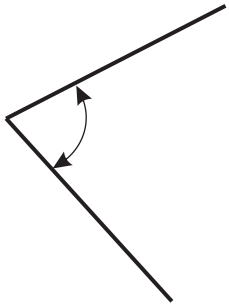
45°	200°
225°	135°

(e)



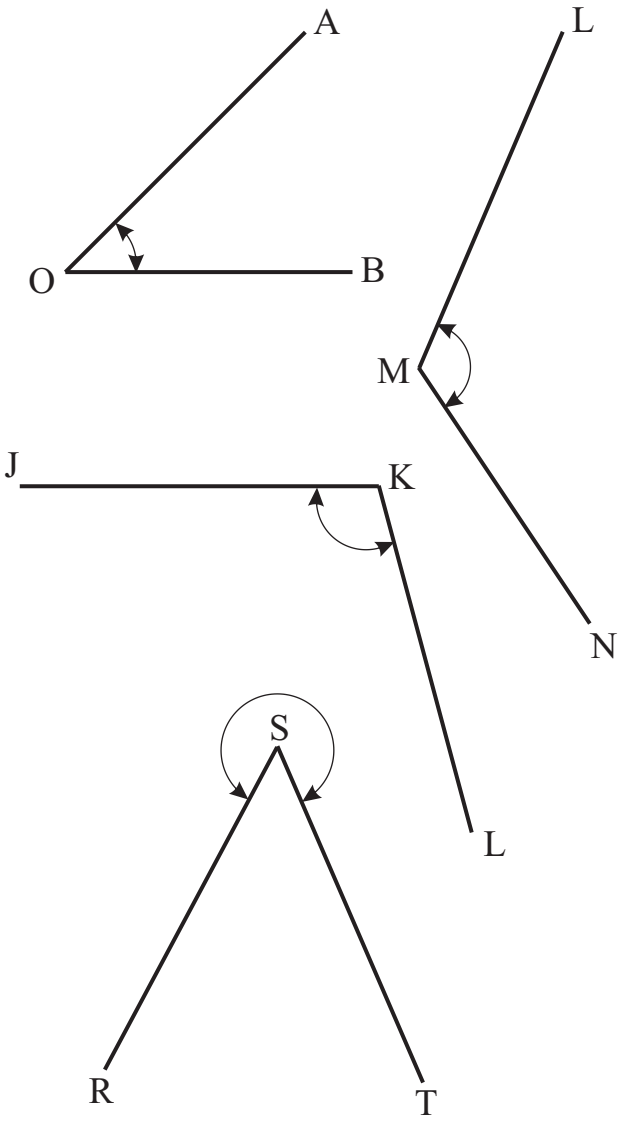
30°	330°
230°	130°

(f)



45°	65°
75°	85°

2. For the following angles, first estimate their size, then use a protractor to measure them.



Angle	*Estimate*	*Measure*
∠AOB		
∠LMN		
∠JKL		
∠RST		

Master Maths 7 Worksheet 60
Drawing Angles

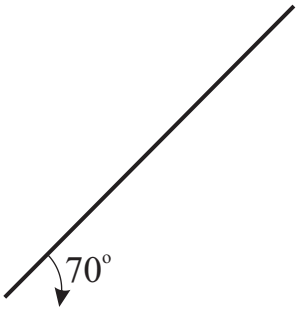
60

Name: _____

1. Complete these angles using your protractor.

(a)

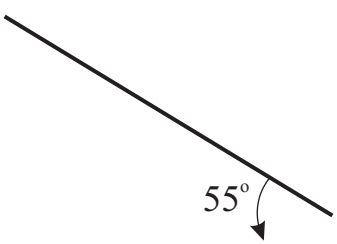
(b)



(c)

(d)

(e)

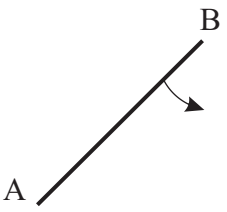


2. Follow these directions:
(a) At A draw a line at an angle of 40°.
(b) Make this line 2 cm long.
(c) At B draw a line at an angle of 140°.
(d) Make this line 2 cm long.
(e) Connect the ends of these two lines.

The shape you have constructed is called a _____

3. Follow the directions below.
(a) Find point C such that ∠ABC is 90° and the length of BC is the same as AB.
(b) Find point D such that ∠BAD and ∠BCD are 105°.
(c) What is the name of this shape?

_____



Master Maths 7 Worksheet 61
Types of Angles

61

Name: _____

1. From the list below choose the correct name for the following angle sizes.

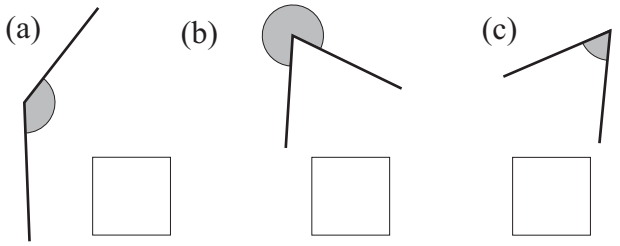
REFLEX ACUTE OBTUSE
RIGHT ANGLE STRAIGHT ANGLE

Size of Angle	*Name*
90°	
0 - 90°	
90° - 180°	
180°	
180° - 360°	

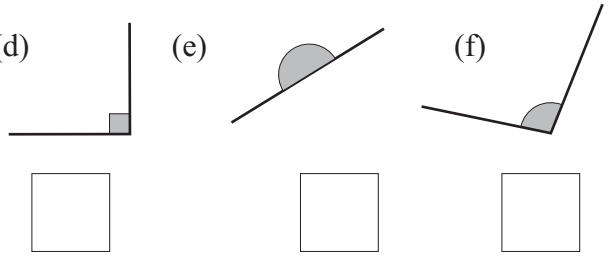
2. In the boxes under the following angles state if each angle is:

A - an acute angle
B - a right angle
C - an obtuse angle
D - a straight angle
E - a reflex angle

(a) (b) (c)



(d) (e) (f)

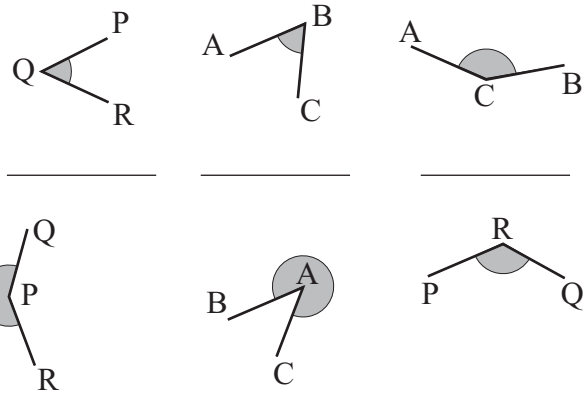


(g) 300° (h) 58° (i) 139° (j) 180°

(k) 195° (l) 96° (m) 289° (n) 23°

3. From the list below choose the correct name for each of the following angles and write the correct name under each angle.

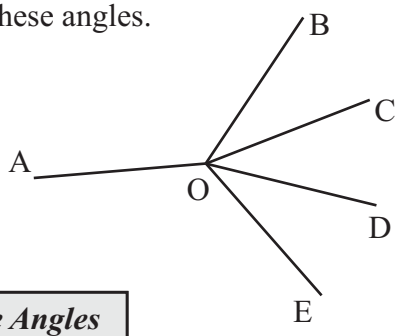
∠ABC ∠CAB ∠BCA ∠PQR ∠RPQ ∠QRP



_____ _____ _____

_____ _____ _____

4. In the diagram below there are 5 acute angles, 5 obtuse angles and 10 reflex angles. Under the diagram list the names (eg ∠AOB) of all of these angles.



Acute Angles

Obtuse Angles

Reflex Angles

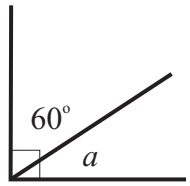
Master Maths 7 Worksheet 62
Calculating Angles 1

62

Name: _____

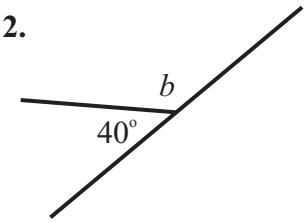
Calculate the unknown angles.

1.



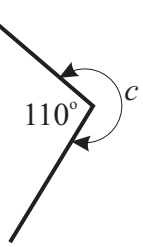
$a =$

2.



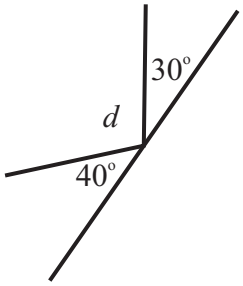
$b =$

3.



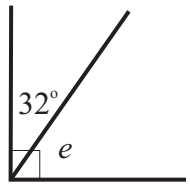
$c =$

4.



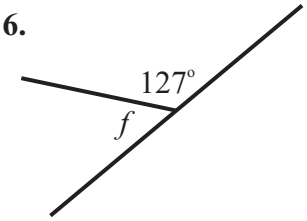
$d =$

5.



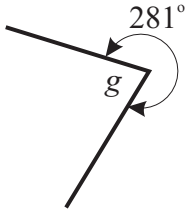
$e =$

6.



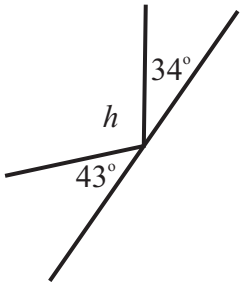
$f =$

7.



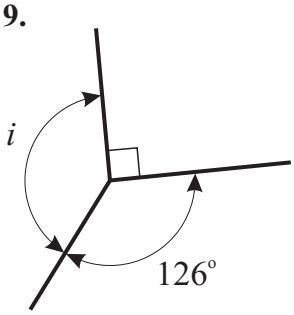
$g =$

8.



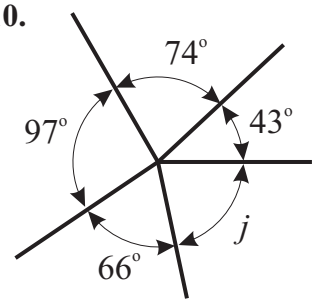
$h =$

9.



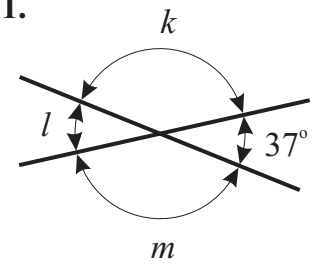
$i =$

10.



$j =$

11.

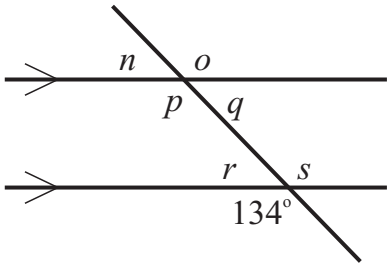


$k =$

$l =$

$m =$

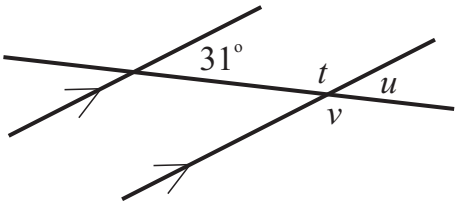
12.



$n =$ $o =$ $p =$

$q =$ $r =$ $s =$

13.



$t =$ $u =$ $v =$

Master Maths 7 Worksheet 63
Calculating Angles 2

63

Name: _____

1. (a) Find the ***obtuse*** angle formed by the hands of a clock at 8:00.

(b) Find the ***reflex*** angle formed by the hands of a clock at 8:00.

2. The blades of a windmill complete one revolution every minute.
What angle would the blades turn through in the following times?
(a) One second

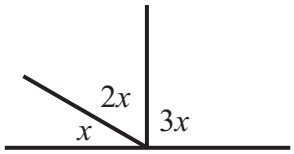
(b) Ten seconds

3. How many degrees are in the following angles?

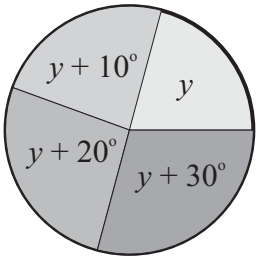
(a) $\frac{1}{5}$ of a circle

(b) $\frac{3}{5}$ of a circle

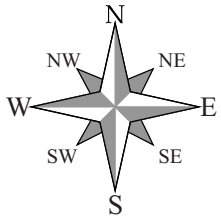
4. Find x.



5. Find y.



6. Use the compass shown here to help answer the following questions.



(a) What is the angle between the following directions?
(i) North-east and south-east

(i) South and north-west

(b) If you are facing south-east, which direction is 90° to your left?

(c) If you are facing north-west and turn 45° to your right, which direction are you now facing?

(d) A yacht is travelling in a northerly direction. It changes its direction of travel by 70° to the east. By what angle would the yacht need to change its direction of travel to be sailing south?

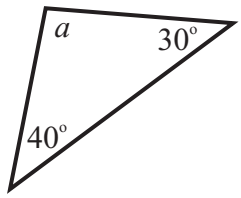
Master Maths 7 Worksheet 64
Angles in Triangles 1

64

Name: _____

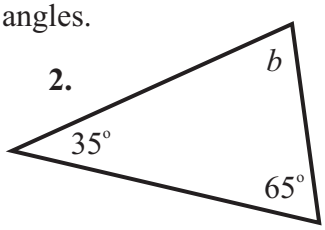
Calculate the unknown angles.

1.



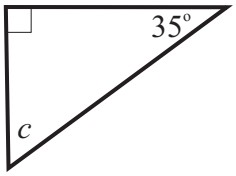
$a =$

2.



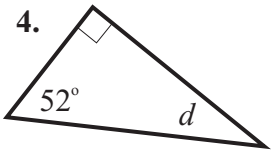
$b =$

3.



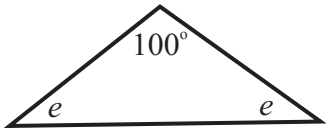
$c =$

4.



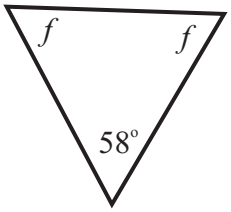
$d =$

5.



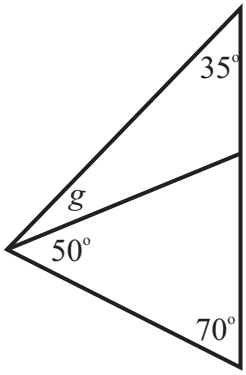
$e =$

6.



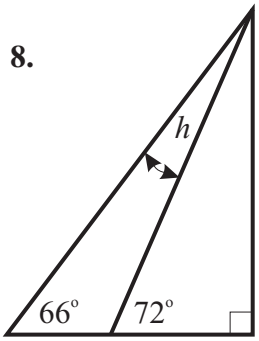
$f =$

7.



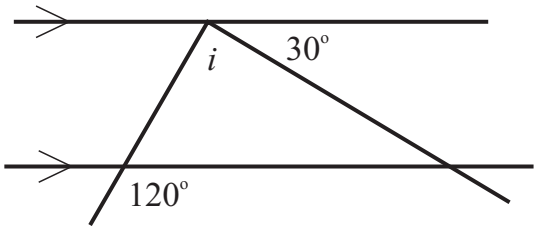
$g =$

8.



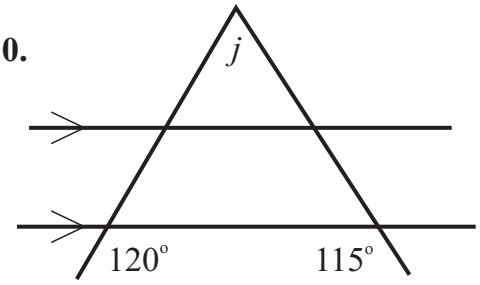
$h =$

9.



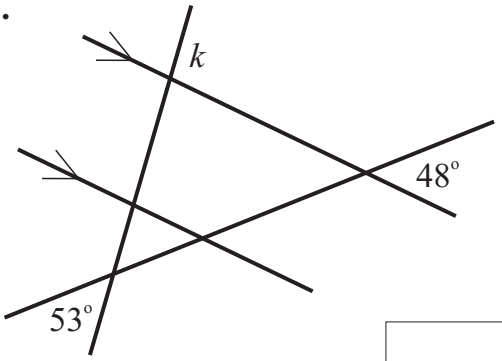
$i =$

10.



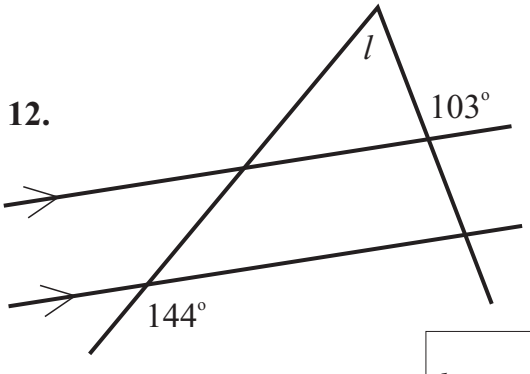
$j =$

11.



$k =$

12.



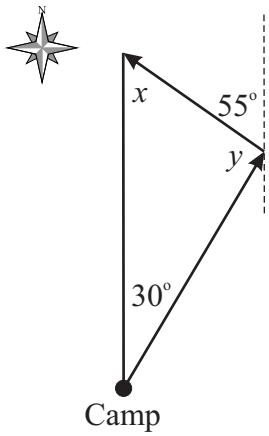
$l =$

Master Maths 7 Worksheet 65
Angles in Triangles 2

65

Name: _____

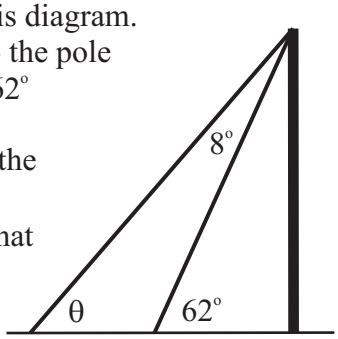
1. Two hikers walk in a direction of north 30° east from their camp and then change their direction to north 55° west until they are directly north of their camp. See the diagram below. Find angles *x* and *y* from this diagram.



x =

y =

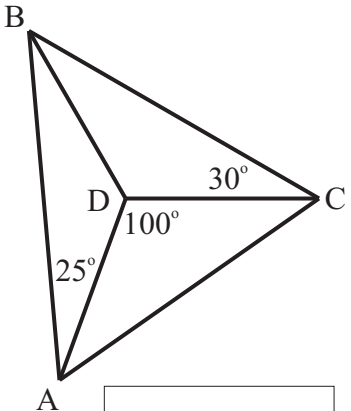
2. Two cables are used to support a vertical pole as shown in this diagram.
The cable closest to the pole makes an angle of 62° with the ground.
The angle between the cables is 8°.
Find the angle (θ) that the other cable makes with the ground.



θ =

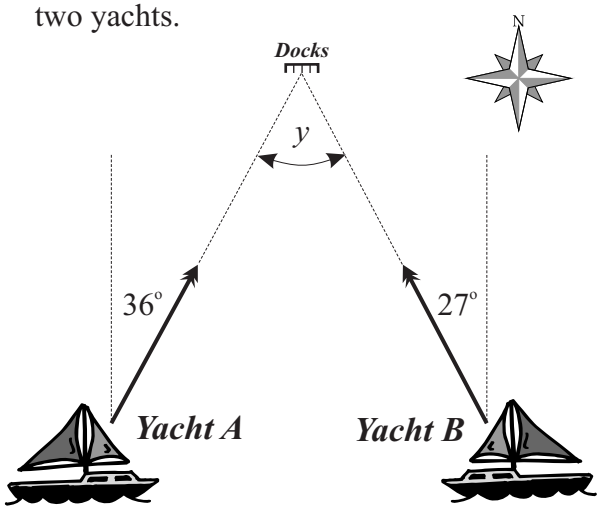
3. In this diagram the length of line BD is the same as the length of DC.

Find ∠ABD.



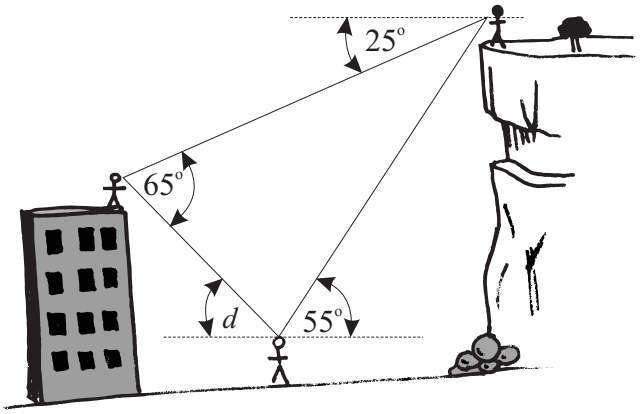
∠ABD =

4. Two yachts are returning to the docks. See the diagram below.
Yacht B is due east of yacht A.
Yacht A sails in a direction north 36° east.
Yacht B sails in a direction north 27° west.
Find the angle *y* between the paths of the two yachts.



y =

5. Natasha is standing on top of a cliff and can see her two sisters below.
Melissa is standing on top of a building and Carley is on the ground.
The angles between the girls are shown on the diagram.
Find angle *d*.



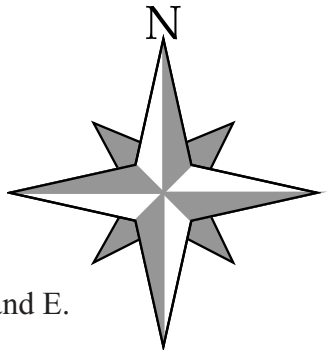
d =

Master Maths 7 Worksheet 66
The Compass 1

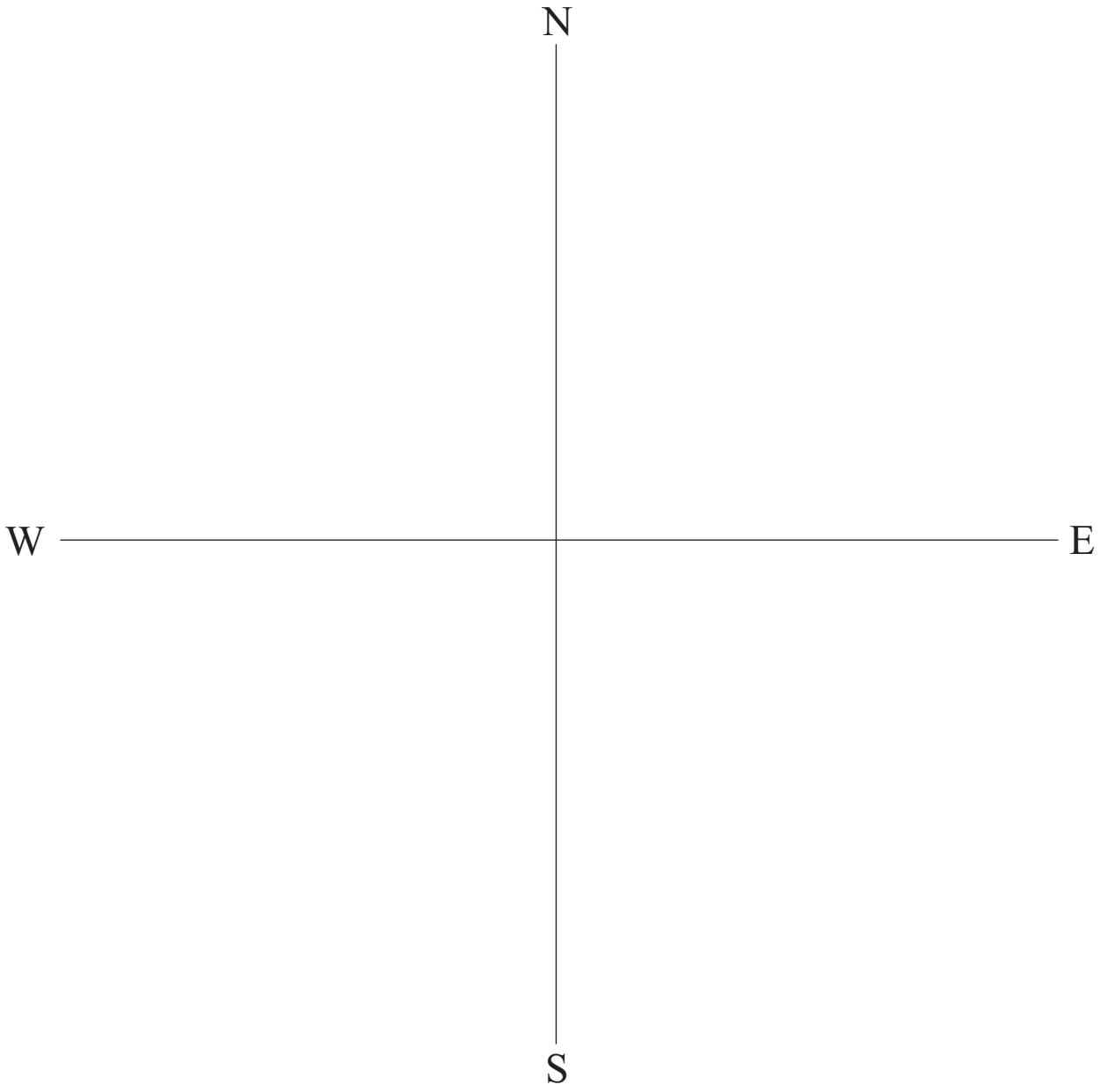
66

Name: _____

Your task is to draw a larger version of the compass diagram shown on the right by following the directions below. Use a pencil to allow for corrections.



1. On the W line, mark a point 2 cm from the centre.
2. Mark points 2 cm from the centre on the N, E and S lines.
3. From the 2 cm mark on the W line, draw lines to the ends of the N and S lines.
4. From the 2 cm mark on the N line, draw lines to the ends of the E and W lines.
5. Repeat this procedure for the other two 2 cm marks.
6. Draw a line 5 cm long from the centre, at an angle of 45° between N and E.
7. Draw similar lines between N & W, W & S and S & E.
8. Connect the end of these lines to the two closest 2 cm marks.
9. Colour your diagram similar to the diagram provided.



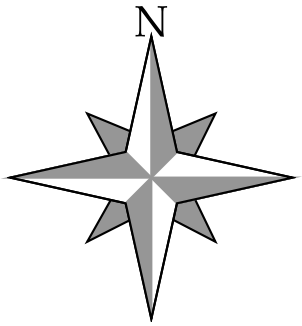
Master Maths 7 Worksheet 67
The Compass 2

67

Name: _____

1. Find the angle between the compass points below, ***always moving in a clockwise direction*** when finding the angle.

Examples:
The angle between N & E is 90°
The angle between N & W is 270°



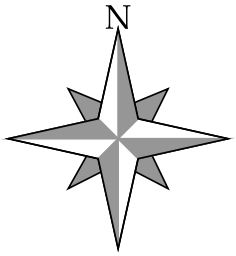
Compass Points		*Angle Between*
E	S	
E	W	
SE	SW	
SW	SE	
NW	S	
NE	N	
SE	NW	
SW	W	

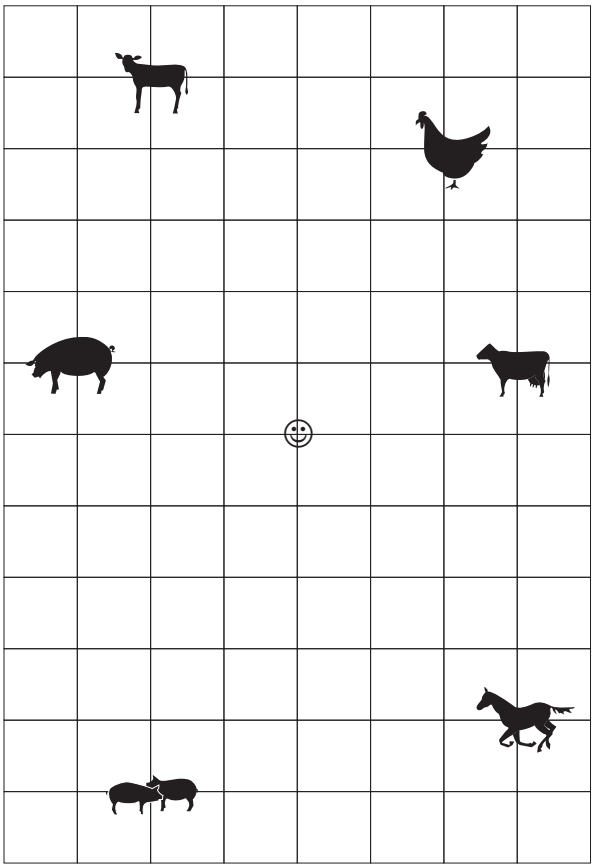
2. A person is facing East.
He turns left 90°.
He then about faces.
He turns right 90°.
He then about faces again.
What direction does he now face?

3. You are at the centre of the grid below.
Follow the directions and find the animal at which you finish.

Directions:

South 4 units
West 3 units
North 3 units
East 5 units
North 5 units





Master Maths 7 Worksheet 68
Constructions

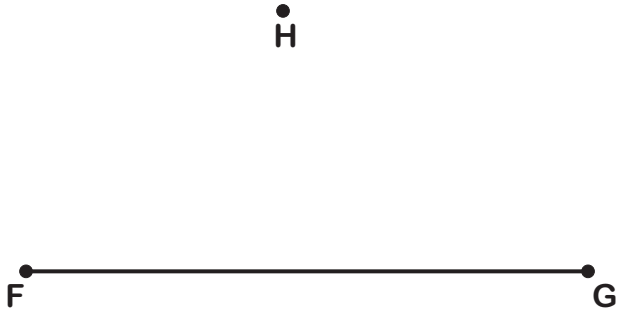
68

Name: _____

1. Using a compass and ruler:
(a) construct a line that is ***perpendicular*** to line **AB** below and passes through point **C**.
(b) construct a line that is ***perpendicular*** to line **AB** below and is 5 cm from **A**.

2. Using a compass and ruler construct a ***perpendicular bisector*** of line **DE** below.

3. Using a compass and ruler construct a line that is parallel to line **FG** below and passes through point **H**.



4. Using a compass and ruler construct a line that is parallel to line **JK** below and is 4 cm below the line.

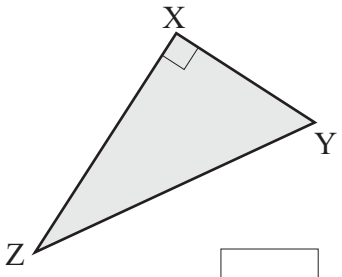
Master Maths 7 Worksheet 69
Polygons

69

Name: _____

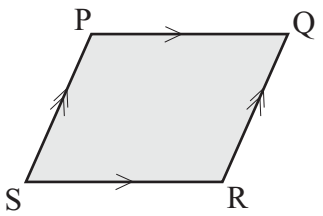
1. Choose which of the angles below is the right-angle in this shape.

A ∠XYZ
B ∠ZXY
C ∠YZX
D ∠XZY

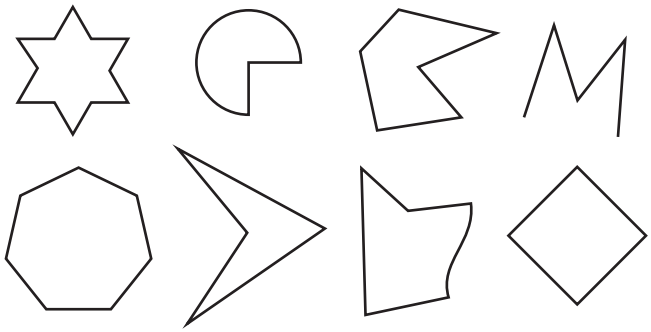


2. Choose which of the lines below is parallel to $\overline{PQ}$.

A $\overline{QR}$
B $\overline{RS}$
C $\overline{SQ}$
D $\overline{SP}$



3. Colour in the shapes below that are polygons.



4. Circle the shape/s from question 3 that are regular polygons.

5. In the space below draw a concave hexagon and a convex hexagon.

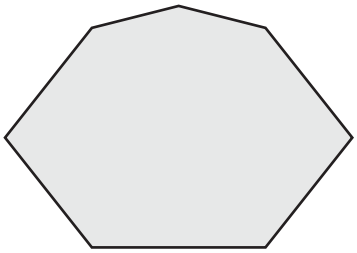
Concave hexagon ***Convex hexagon***

6. Draw a polygon that has three vertex angles greater than 180°.

7. (a) Unscramble these letters to find the name of the shape below.

ROUGH PETAL EARRING

_____



(b) Using a ruler, draw all possible diagonals in this shape.
(c) How many diagonals are there?

8. Research different polygons and find the names of three polygons that have more than 10 sides. State how many sides they have.

_____

_____

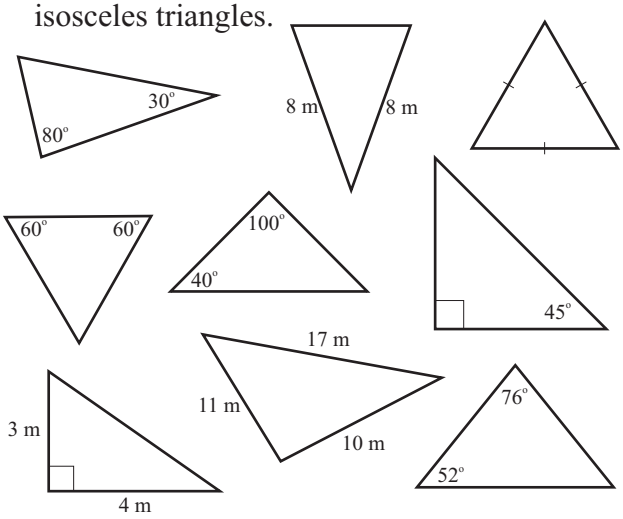
_____

Master Maths 7 Worksheet 70
Triangles and Quadrilaterals

70

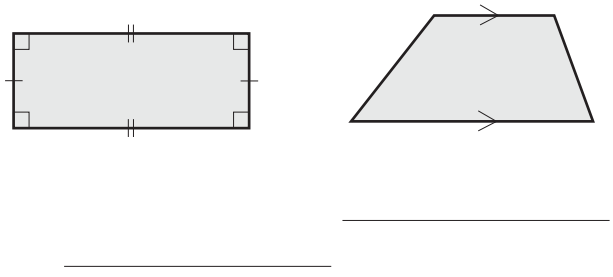
Name: _____

1. Study the triangles below and colour in red the scalene triangles and colour in blue the isosceles triangles.

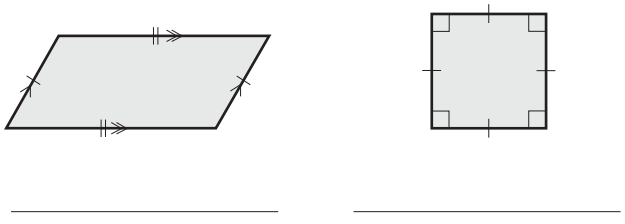


2. What is the name given to the triangles not coloured in from question 1?

3. Write the name of each of the following quadrilaterals.



_____ _____

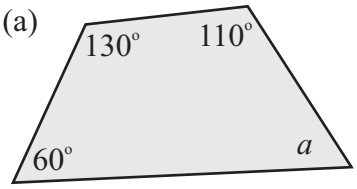


_____ _____

_____ _____

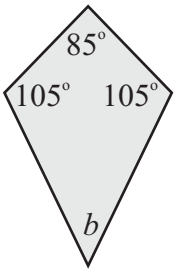
4. Find the unknown angles in the following quadrilaterals.

(a)



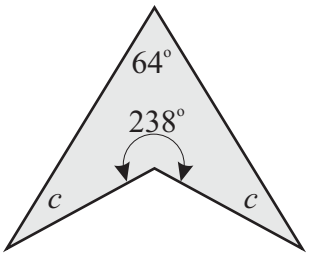
$a =$

(b)



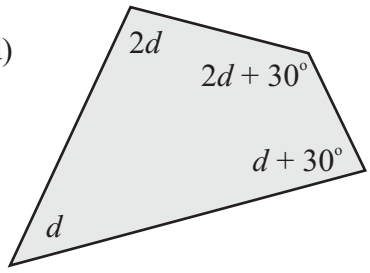
$b =$

(c)



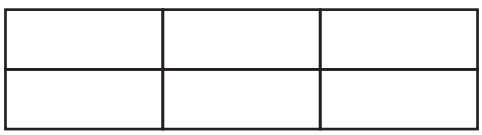
$c =$

(d)



$d =$

5. How many rectangles are in the drawing below? (The answer is not 6!)



Master Maths 7 Worksheet 71
Probability 1

71

Name: _____

1. For the events below choose from the following alternatives the best description of the probability that they will occur.

A Impossible
B Very unlikely
C Unlikely
D Could go either way equally
E Likely
F Very likely
G Certain

(a) It will snow in Fiji tomorrow. ☐

(b) If a card was drawn from a deck it will be the ace of hearts. ☐

(c) If a card was drawn from a deck it will be a club. ☐

(d) If a card was drawn from a deck it will be a red card. ☐

(e) The Sun will rise tomorrow. ☐

(f) If a coin is tossed it will come up heads. ☐

(g) If a person was selected at random they would be left-handed. ☐

(h) Your Mathematics teacher will tell a joke in the next class. ☐

(i) Your Mathematics teacher will tell a funny joke in the next class. ☐

(j) There is life on Mars. ☐

(k) A world record will be broken at the next Olympic Games. ☐

(l) If you dropped an egg it would break. ☐

(m) If you dropped an egg it would not break. ☐

(n) If you had a shot at goal in netball you will score a goal. ☐

(o) It will rain on the Moon tomorrow. ☐

2. For which of the following situations are the possible outcomes:

A equally likely
B not equally likely

(a) A bag contains three black balls and three white balls. A ball is chosen at random. ☐

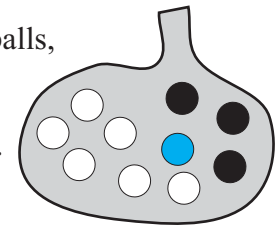
(b) A bag contains two black balls and four white balls. A ball is chosen at random. ☐

(c) A six sided die is rolled. ☐

(d) The maximum temperature tomorrow will be less than 30°C, 30°C or above 30°C. ☐

(e) A student is randomly chosen from a class with 12 girls and 13 boys. Is the student a boy or a girl? ☐

3. A bag contains six white balls, three black balls and one blue ball. A ball is drawn at random.



(a) What is the ***most*** likely colour of this ball? ☐

(b) What is the ***least*** likely colour of this ball? ☐

4. A bag contains two white balls, five black balls, seven red balls and one blue ball. One ball is chosen at random from the bag. List the colours in order from the least likely to the most likely to be drawn.

☐ ☐ ☐ ☐

least likely ***most likely***

Master Maths 7 Worksheet 72
Probability 2

72

Name: _____

1. Rate the probability, as a ***decimal***, of the following events occurring.

(a) The temperature will be above 30° in Darwin tomorrow. ☐

(b) Christmas will be in December this year. ☐

(c) If you threw a dart at a dart board you scored a 'bulls-eye'. ☐

(d) If you threw a dart at a dart board you hit the board. ☐

(e) You wake up before 6 o'clock tomorrow morning. ☐

(f) In a class of 20 students at least one student wears spectacles. ☐

2. A letter is chosen at random from the word **STATISTICS**.
Give the following probabilities as a fraction, in its simplest form, decimal and percentage.

(a) Find the probability the letter is **A**.

☐ ***fraction*** ☐ ***decimal*** ☐ ***percentage***

(b) Find the probability the letter is **I**.

☐ ***fraction*** ☐ ***decimal*** ☐ ***percentage***

(c) Find the probability the letter is **S** or **T**.

☐ ***fraction*** ☐ ***decimal*** ☐ ***percentage***

3. A night of the week is randomly chosen for a meeting. Give the following probability as a fraction.
What is the probability the night is on the weekend? ☐

4. Stan wanted to find out how long it would take him to ride his bicycle to school.
He recorded the times, to the nearest minute, for twenty trips to school. These are shown below.

27	22	18	16	20	23	22	19	28	20
28	24	19	23	25	18	21	25	18	22

Give the following probabilities as ***decimals***.
Based on these figures:

(a) what is the probability it takes Stan less than 20 minutes to ride to school? ☐

(b) what is the probability it takes Stan more than 20 minutes to ride to school? ☐

5. Samantha is a tennis player and in one match she had 60 serves of which 15 were aces.

(a) Based on these figures, what is the probability Samantha will serve an ace? Give answer as a ***percentage***. ☐

Anna also plays tennis. While practising with a friend she had 20 serves and hit eight aces.

(b) Based on these figures, what is the probability Anna will serve an ace? Give answer as a ***percentage***. ☐

(c) For which player is the probability more accurate and why?

_____

_____

Master Maths 7 Worksheet 73
Data 1

73

Name: _____

1. State if the following data is ***numerical*** (**N**) or ***categorical*** (**C**).

(a) The cost of meals at a restaurant. ☐

(b) The age of spectators at a tennis tournament. ☐

(c) The nationality of players at a tennis tournament. ☐

(d) The time taken for a people to complete a survey. ☐

(e) The age of people buying their first home. ☐

2. State if the following data is ***discrete*** (**D**) or ***continuous*** (**C**).

(a) The number of people at a restaurant. ☐

(b) The size of a bank account. ☐

(c) The time taken to walk to school. ☐

(d) The distance a javelin is thrown. ☐

(e) The weight of a crate of tomatoes. ☐

3. State if the following data is ***nominal*** (**N**) or ***ordinal*** (**O**).

(a) The colour of carpet in a house. ☐

(b) The quality of sound at a concert. ☐

(c) The standard of care in a hospital. ☐

(d) The type of timber used for furniture. ☐

(e) The type of dog people have as a pet. ☐

4. State if the following data is ***primary*** (**P**) or ***secondary*** (**S**).

(a) A farmer records the amount of water he uses to irrigate his paddocks. ☐

(b) A meteorologist looks at the annual rainfall totals recorded over the last 100 years. ☐

(c) A political party surveys 1000 people to find out their reaction to a new policy. ☐

(d) A consumer protection group tests cars to compare their safety features. ☐

5. State if the following statements are ***true*** (**T**) or ***false*** (**F**).

(a) The accuracy of a survey does not depend on the number of people who are surveyed. ☐

(b) It is important to include a cross-section of the population when conducting a survey. ☐

(c) For a population of 9000 a sample size of 30 would be adequate for accurate survey results. ☐

(d) Primary data is always more accurate than secondary data. ☐

(e) The sea water temperature over the last 100 years is secondary, continuous data. ☐

6. What do the initials ABS stand for?

_____

_____

Master Maths 7 Worksheet 74
Data 2

74

Name: _____

1. The number of people in each car was counted for a number of cars travelling on a freeway during peak hour. This data is shown below. Complete the frequency distribution table for this data.

1, 2, 1, 2, 3, 4, 3, 2, 2, 2, 3, 1, 1, 2, 4, 3, 2, 3, 2, 1, 1, 2, 3, 1, 2, 1, 2, 3, 4, 5, 4, 3, 6, 2, 3, 2, 1, 3, 2, 7, 4, 2, 3, 4, 3, 2, 1, 3, 4, 2, 3, 2, 1, 5, 2, 3, 1, 4, 3, 2, 4, 5, 1, 1, 2, 2, 3, 2, 2, 3, 4, 4, 2, 3, 1, 4, 3, 2, 3, 3, 3, 2, 2, 5, 4, 3, 2, 2, 3, 3

Number of People	*Tally*	*Frequency*
1		
2		
3		
4		
over 4		
	Total	

2. A breakfast cereal company wanted to check how many sultanas were in their packets of cereal. A quality controller counted the number of sultanas in 50 packets of cereal and the numbers are shown below.
Complete the frequency distribution table for this data.

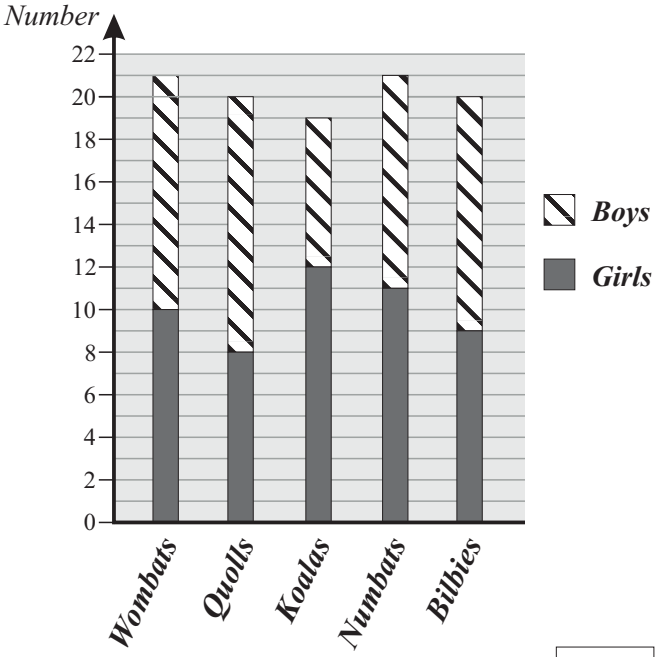
11, 16, 4, 27, 13, 11, 8, 19, 15, 19, 13, 18, 7, 16, 25, 12, 15, 18, 22, 9, 3, 17, 18, 9, 20, 5, 17, 12, 21, 30, 11, 16, 9, 16, 11, 18, 13, 8, 9, 21, 16, 17, 14, 10, 11, 2, 11, 16, 14, 17

Number of Sultanas	*Tally*	*Frequency*
0 - 5		
- 10		
- 15		
- 20		
over 20		
	Total	

3. Students in a geography class were asked to name a European capital city. The responses are listed below.
Complete the dot plot to display this data.

Paris, Rome, Madrid, Rome, Paris, London, Paris, Rome, London, Madrid, Paris, Rome, London, Rome, London, Paris, Rome, Rome, Paris, London, Rome, Paris, Madrid

4. On a school camp the students were divided into five groups - ***wombats***, ***quolls***, ***koalas***, ***numbats*** and ***bilbies***.
The graph below shows the number of boys and girls in each group.



(a) How many boys were on the camp? ☐

(b) How many girls were on the camp? ☐

Master Maths 7 Worksheet 75
Data 3

75

Name: _____

1. The prices of paintings sold at a fund raising auction for a school are shown below.

$38, $47, $82, $65, $40, $36, $76, $42, $35, $67, $80, $46, $35, $43, $59, $52, $49, $62, $68, $72, $60, $53, $50, $41, $70, $54, $60

(a) Complete a non-ordered stem-and-leaf plot for this data.

Stem	***Leaf***

(b) Complete an ordered stem-and-leaf plot for this data.

Stem	***Leaf***

(c) How many items of artwork were sold? ☐

(d) What was the ***largest*** amount paid for an item of artwork? ☐

2. The speed (in km/hr) of first serves and second serves of a tennis player during a set were recorded and shown below.

First serve speeds:
186, 175, 162, 178, 189, 158, 182, 156, 168, 166, 180, 177, 158, 159, 187, 170, 169, 172, 163, 160, 158, 152, 175, 169, 181, 179

Second serve speeds:
148, 128, 137, 142, 153, 136, 140, 133, 139, 142, 131, 126, 133, 140, 129, 125, 132, 141

(a) Complete the non-ordered back-to-back stem-and-leaf plot for this data.

First Serve		***Second Serve***
Leaf	***Stem***	***Leaf***

(b) Complete the ordered back-to-back stem-and-leaf plot for this data.

First Serve		***Second Serve***
Leaf	***Stem***	***Leaf***

(c) What was the speed of the fastest first serve? ☐

Master Maths 7 Worksheet 76
Data 4

76

Name: _____

1. For the following sets of data find the:
(i) mean (ii) median (iii) mode (iv) range

(a) 1, 2, 2, 3, 4, 5, 5, 5, 5, 6, 6

(i) mean = $\frac{\square}{\square}$ = $\square$

(ii) median $\square$ (iii) mode $\square$ (iv) range $\square$

(b) 10, 11, 13, 14, 14, 15, 17, 17, 18, 20, 24, 25

(i) mean = $\frac{\square}{\square}$ = $\square$

(ii) median $\square$ (iii) mode $\square$ (iv) range $\square$

2. (a) Arrange the following set of data in numerical order from the smallest to the largest.

62, 18, 47, 29, 78, 42, 22, 16, 57, 14, 38, 75

_____

(b) Find the mean for this set of data.

mean = $\frac{\square}{\square}$ = $\square$

(c) Find the median. $\square$

(d) Find the range. $\square$

3. For the set of data shown on the stem-and-leaf plot below find the:
(a) mean (b) median (c) mode (d) range

Stem	*Leaf*
4	4 5 6
5	0 1 2 4 4 5 6 7
6	0 2 2 4 5 5 5 6 9
7	1 2 3 5 6 6
8	0 1 1

(a) mean = $\frac{\square}{\square}$ = $\square$

(b) median $\square$ (c) mode $\square$ (d) range $\square$

4. (a) Convert the data shown on the non-ordered stem-and-leaf plot below to an ordered stem-and-leaf plot.

Stem	*Leaf*
1	7 5 9 7 6
2	7 1 8 3 4 3 0 2 5
3	3 6 2 7 1 4

Stem	*Leaf*

(b) Find the mean for this set of data.

mean = $\frac{\square}{\square}$ = $\square$

(c) Find the median. $\square$

Master Maths 7 Worksheet 77
Data 5

77

Name: _____

1. For the set of data shown in the frequency distribution table below find the:
(a) mean (b) median (c) mode (d) range

Score	*Tally*	*Frequency*
0	𝍸 ||||	9
1	𝍸 𝍸 ||	12
2	𝍸 𝍸 𝍸 ||||	19
3	𝍸 𝍸	10
	Total	50

(a) mean $= \frac{\square}{\square} =$ ☐

(b) median ☐ (c) mode ☐ (d) range ☐

2. The set of data below shows the number of wickets taken each innings by a bowler in three seasons of cricket.

1, 0, 1, 3, 1, 1, 3, 1, 2, 4, 2, 3, 2, 0, 2, 2, 2, 3, 2, 4, 2, 2, 3, 2, 2, 3, 2, 2, 3, 3, 3, 1, 3, 2, 3, 0, 3, 2, 3, 4, 3, 2, 3, 0, 4

Complete the frequency distribution table below for this data.

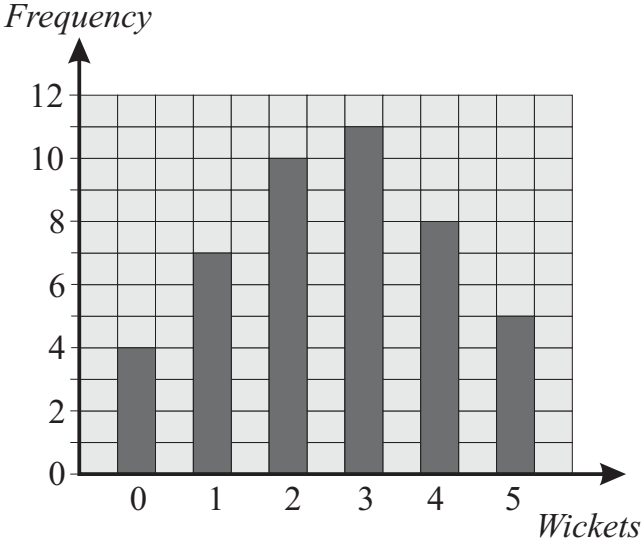
Wickets	*Tally*	*Frequency*
	Total	

3. Find the mean, median, mode and range for the data shown in question 2.

mean $= \frac{\square}{\square} =$ ☐

median ☐ mode ☐ range ☐

4. The number of wickets that another bowler takes is shown on the graph below.
For this data find the mean, median, mode and range.



mean $= \frac{\square}{\square} =$ ☐

median ☐ mode ☐ range ☐