Master Maths 8 Worksheet 1
Whole Numbers, Addition and Subtraction

1

Name: _____

1. Write the following as numerals.

(a) eight thousand, five hundred and twenty-three

(b) six hundred and four thousand, nine hundred and one

2. Write the following number in words.

560 763

_____

_____

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

56 279	56 378	56 274	55 971
55 984	56 392	55 939	56 387

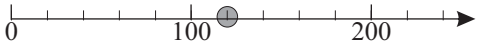
_____

_____

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

(a) 45 68 (b) 126 119 (c) 1287 1278

5. Write the number shown by the dot on this number line.



6. Round the following numbers to the nearest ***ten***.

(a) 14 (b) 76 (c) 245 (d) 1997

7. Round the following numbers to the nearest ***hundred***.

(a) 62 (b) 247 (c) 967 (d) 3740

8. Complete this addition table without using a calculator.

+		13		8
36	57			
			62	23
	30			
			75	

9. Complete these calculations.

(a)
$$\begin{array}{r} 78509 \\ +\ 6784 \\ \hline \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 40137 \\ -\ 8019 \\ \hline \\ \hline \end{array}$$

10. Find the sum of the following numbers without using a calculator:

457, 5609, 12 837, 536

11. Davey guessed there were 9854 beans in a bucket. Kara guessed 6772.
Davey's guess was 28 closer to the exact amount than Kara's.
How many beans were in the bucket?

Master Maths 8 Worksheet 2
Multiplication, Division and BODMAS

2

Name: _____

1. Complete this multiplication table.

×			6	7		
2	6					
			30			55
8		32				
9						
		48			120	
				7		

2. Complete the following calculations.

(a)

$$\begin{array}{r} 679 \\ \times\ 38 \\ \hline \\ \\ \\ \hline \end{array}$$

(b)

$$7\overline{)35476}$$

3. Find the product of 54 and 392.

4. A crate of bricks weighed 2148 kg. Each brick weighed 6 kg. How many bricks were in the crate?

5. In Australian rules football a goal is worth six points and a behind is worth one point.

(a) Find the total score for the following:

(i) 9 goals 15 behinds

(ii) 18 goals 23 behinds

(b) Melbourne (15 goals 11 behinds) defeated Carlton (13 goals 8 behinds). What was the winning margin?

(c) The Barton Bombers scored 96 points in a game. They had twice as many behinds as they kicked goals. How many goals did they kick?

6. Solve the following problems.

(a) $5 + 7 \times 8$ (b) $3 + 5 \times 8 \div 10 - 7$

(c) $3 \times (8 - 5) \times 4$ (d) $5 + \frac{1}{2}$ of $(8 + 4) \times 3$

(f) $4 \times (8 + \frac{1}{3}\text{of } 24) \div 2 + 7 \times 5 - 4 \times (5 + 3)$

Master Maths 8 Worksheet 3
Factors and Multiples

3

Name: _____

1. Write ***all*** the factors of the following numbers.

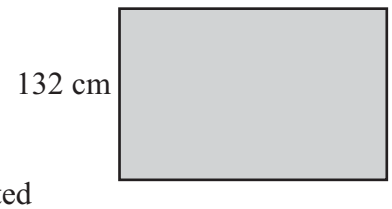
(a) 16

(b) 72

2. Find the highest common factor for the following pairs of numbers.

(a) 15, 27 (b) 36, 48 (c) 36, 60

3. Clara had a rectangular sheet of board that she wanted to divide in squares. The sheet of board is 180 cm long and 132 cm wide. She wanted the squares to be as large as possible with no board wasted.



(a) What is the side length of each of the squares so there is no wastage?

(b) How many of these squares could Clara cut out of the board?

4. Circle the numbers below that are ***prime numbers***.

135 27 87 171 157 89 53 51

5. Complete the factor tree for 1512 and write the factors as products of its prime factors in index form.

1512

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

(a) 8, 10 (b) 10, 12 (c) 3, 5, 8

7. A brick layer had different types bricks.

Small bricks - 4 cm thick
Standard bricks - 6 cm thick
Large bricks - 10 cm thick

(a) If he stacked the ***small*** bricks on top of each other and ***standard*** bricks on top of each other, what is the least number of each for the stacks to be the same height?

Small

Standard

(b) If he stacked the ***small*** bricks on top of each other, the ***standard*** bricks on top of each other and the ***large*** bricks on top of each other, what is the least number of each for the three stacks to be the same height?

Small

Standard

Large

Master Maths 8 Worksheet 4
Whole Numbers - Mixed Problems

4

Name: _____

1. How many days are in 31 weeks?

2. How many seconds are in half an hour?

3. How many cakes, each costing 80 cents, could you buy with $12?

4. Complete these patterns.

(a) 5, 5, 10, 30, 120, ☐ , ☐

(b) 2, 4, 8, ☐ , ☐ , 32

5. Perform these calculations with the help of a calculator.

(a) 7834×287

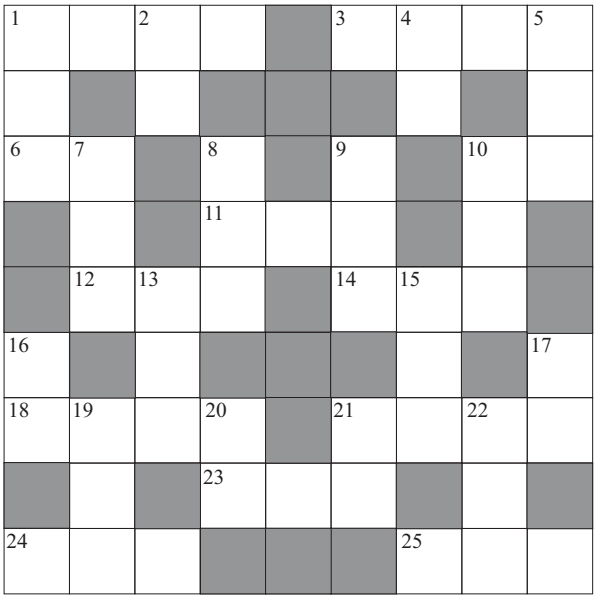
(b) $356 \times$ ☐ $= 77\,252$

(c) $78\,293 + 3789 - 39\,278$

(d) $$\frac{(783 + 589) \times 2632}{605 - 549}$$

(e) How many seconds are in $2\frac{1}{2}$ days?

(f) If an elephant eats 45 kg of food per day, how much will it eat in a non-leap year?



Across

1. $789 + 1569$
3. $3584 - 1855$
6. 8^2
10. $2^4 + 2^2$
11. 26×5
12. $4^2 \times 6^2$
14. $(13 - 2)^2$
18. Eight thousand six hundred and two
21. This number is a palindrome
23. Twice one more than two hundred
24. A quarter of one thousand
25. 9×100

Down

1. 2^8
2. $\frac{1}{2}$ of 106
4. $2 \times 2 \times 2 \times 3 \times 3$
5. $3^2 \times 10^2$
7. $325 + 58 + 9 + 13$
8. 54×4
9. $\sqrt{10\,000} + 1$
10. 39 less than 24 across
13. $7\frac{1}{2} \times 100$
15. $2 \times 10^2 + 5^2$
16. $(11 - 2) \times 8 \div 4$
17. 17×3
19. The difference between 803 & 188
20. Two dozen
21. $\sqrt{144}$
22. $5^4 - 5^3$

Master Maths 8 Worksheet 5
Index Laws

5

Name: _____

1. Write the following in factor form.

(a) 5^6

(b) 11^5

2. Write the following in index form.

(a) $4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4$

(b) $9 \times 9 \times 9 \times 9 \times 9 \times 9$

3. Simplify the following.

(a) $3^5 \times 3^4$ (b) $7^8 \times 7$ (c) $2^9 \times 2^{14}$

(d) $\frac{6^8}{6^5}$ (e) $\frac{3^{10}}{3}$ (f) $\frac{7^{23}}{7^{15}}$

(g) $5^7 \div 5^3$ (h) $13^{12} \div 13^7$ (i) $9^{15} \div 9$

(j) 8^0 (k) 27^0 (l) $7^0 - 9^0$

(m) $(5^4)^2$ (n) $(2^7)^3$ (o) $(13^4)^{12}$

4. Simplify the following.

(a) $\frac{(3^7 \times 3^8)^2}{(3^5 \times 3^2)^3}$ (b) $\frac{(6^9 \times 6^7)^4}{(6^{11} \times 6^4)^4}$

(c) $\frac{(7^5 \times 7^3)^9}{(7^6 \times 7^4)^7} \times \frac{(7^{12} \times 7^8)^5}{(7^{11} \times 7)^8}$

5. Evaluate the following.

(a) $6^0 + 7$ (b) $(23 - 15)^0$ (c) $(5^5)^0$

(d) $(3^2 + 2^0)^2$ (e) $4^2 \times 2^0$ (f) $2^3 + 1^4$

(g) $\frac{6^2 + 3^2}{2^4 - 1}$ (h) $\frac{2^8}{7^0 + 3}$ (i) $\frac{9^2 - 9^0}{5^2 - 3^2}$

Master Maths 8 Worksheet 6
Integers

6

Name: _____

1. Complete the following patterns.

(a) -5, -4, -3, -2, ☐, ☐, ☐, ☐.

(b) 10, 8, 6, 4, ☐, ☐, ☐, ☐.

(c) 14, 11, 8, 5, ☐, ☐, ☐, ☐.

(d) -16, -15, -13, -10, ☐, ☐, ☐, ☐.

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

(a) -3 ☐ 2 (b) 5 ☐ -2

(c) 0 ☐ -2 (d) -3 ☐ -8

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

-3 5 0 -10 8 -1 9 -12

_____

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

(a) -3, 4 ☐ (b) -11, -3 ☐

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

City	Temperature
Hobart	16°C
Istanbul	34°C
Helsinki	-13°C
Chicago	-8°C

What was the difference in the maximum temperature for the following cities?

(a) Hobart and Helsinki ☐

(b) Istanbul and Chicago ☐

(c) Helsinki and Chicago ☐

(d) Istanbul and Hobart ☐

6. A yacht was located 370 km north of the equator. It sailed 520 km directly south. How far, and in what direction, is it from the equator?

☐

7. The highest temperature variation recorded in one day was in Browning Montana, USA on 23rd January 1916.
The temperature dropped 58°C during that day. If the highest temperature was 7°C, what was the lowest temperature on this day?

☐

8. The temperature on the Moon varies from 117°C to -163°C.
What is this temperature variation?

☐

9. Archimedes and Galileo were two famous scientists.
Archimedes was born in 287BC and Galileo in 1564AD.

(a) How many years after Archimedes' birth was Galileo born? ☐

Archimedes died at age 75 and Galileo died at the age of 78.

(b) In what year did Archimedes die? ☐

(c) In what year did Galileo die? ☐

Master Maths 8 Worksheet 7
Integers - Operations

7

Name: _____

1. Find the answers to the following problems.

(a) 5 - 8 (b) -6 + 3 (c) -7 + 9

(d) -4 - 8 (e) -7 + 7 (f) -8 - 8

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

2. Find the answers to the following problems.

(a) 2 - -5 (b) -6 + -7 (c) 4 - -9

(d) -8 + -7 (e) -3 - -7 (f) 9 - -8

(g) -23 + -57 (h) -18 - -26 (i) 24 - -37

3. Find the missing numbers.

(a) 3 - ☐ = -7 (b) 5 + ☐ = -3

(c) -4 + ☐ = -1 (d) -5 + ☐ = -9

(e) ☐ + 14 = 12 (f) ☐ - 6 = -8

(g) ☐ - 4 = -11 (h) ☐ + 8 = -6

4. Find the answers to the following problems.

(a) 5 × -5 (b) -6 ÷ 3 (c) -7 × -3

(d) -4 × -6 (e) -27 ÷ -9 (f) 8 × -5

5. Find the answers to the following problems. Remember BODMAS.

(a) 4 × -5 + 3 - -6

(b) (6 - 8) × (3 - -5)

(c) -5 - 6 × -2 + 18 ÷ -3 - 6

(d) 8 - (3 - 7) × 4 - 2 × -3 + (2 - -12) ÷ (2 - 9)

6. Use a calculator to solve the following problem.

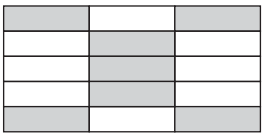
$$\frac{-328 + -68 \times -4}{(-571 + 522) \times -4 \div -7}$$

Master Maths 8 Worksheet 8
Fractions

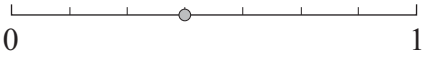
8

Name: _____

1. What fraction of this shape is shaded?



2. What fraction is shown by the dot on this number line?



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

4. (a) Hervey's guinea pig had a litter of five babies. Four were male. What fraction of the litter was female?

(b) Hervey's cat also had a litter. There were 5 male and 2 female kittens. What fraction of this litter was female?

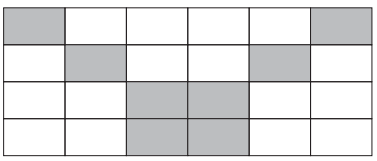
5. Complete the following equivalent fractions.

(a) $\frac{3}{4} = \frac{\square}{16}$ (b) $\frac{7}{8} = \frac{49}{\square}$

6. Write these fractions in their simplest form.

(a) $\frac{18}{27} =$ (b) $\frac{64}{72} =$

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



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

(a) $\frac{3}{5}$ $\frac{4}{7}$ (b) $\frac{5}{8}$ $\frac{7}{11}$

9. Circle the ***larger*** fraction for each of the pairs in question 8.

10. Sam achieved the following marks for three mathematics tests.

Decimals $\frac{60}{90}$ Fractions $\frac{75}{100}$ Numbers $\frac{50}{80}$

(a) Write these marks in their simplest form then change them to a common denominator.

(b) List the marks in order from the highest to lowest mark.

11. Change the following to mixed numbers.

(a) $\frac{59}{6} =$ (b) $\frac{68}{9} =$

12. Change the following to improper fractions.

(a) $6\frac{3}{5} =$ (b) $8\frac{4}{7} =$

Master Maths 8 Worksheet 9
Fractions - Addition and Subtraction

9

Name: _____

1. Complete the following calculations.

(a) $\frac{3}{7} + \frac{2}{7}$ (b) $\frac{7}{9} - \frac{5}{9}$ (c) $\frac{6}{13} + \frac{5}{13}$

(d) $2\frac{3}{4} + 3\frac{1}{4}$ (e) $5\frac{8}{9} - 3\frac{7}{9}$ (f) $4 - 2\frac{3}{4}$

2. Convert the fractions in the following problems to ones with common denominators before solving.
Write answers in their simplest form.

(a) $\frac{3}{10} + \frac{1}{5}$ (b) $\frac{11}{12} - \frac{2}{3}$ (c) $\frac{7}{9} - \frac{1}{3}$

(d) $\frac{1}{4} + \frac{2}{5}$ (e) $\frac{7}{8} - \frac{2}{3}$ (f) $\frac{5}{6} - \frac{3}{4}$

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

3. Write the answers to the following problems as mixed numbers in their simplest form.

(a) $3\frac{5}{8} + 2\frac{5}{6}$ (b) $7\frac{8}{9} - 3\frac{3}{4}$ (c) $5\frac{7}{9} - 2\frac{3}{7}$

4. Belinda worked a part-time job after school
In one week she worked the following hours:

Monday: $2\frac{1}{2}$ hours Tuesday: $3\frac{3}{4}$ hours

Wednesday: $1\frac{1}{4}$ hours Thursday: $2\frac{3}{4}$ hours

(a) What is the total number of hours she worked in the week?

(b) If she gets paid $20 per hour, what was her total pay for the week?

5. An eight metre length of timber is cut into two pieces. One is half a metre longer than the other.
What is the length of each piece of timber?

Master Maths 8 Worksheet 10
Fractions - Multiplication and Division

10

Name: _____

1. Solve these problems.

(a) $\frac{3}{5} \times \frac{1}{2}$ (b) $\frac{6}{7} \times \frac{3}{5}$ (c) $\frac{5}{9} \times \frac{7}{11}$

2. Cancel the following problems to their simplest form before solving.

(a) $\frac{8}{9} \times \frac{3}{5}$ (b) $\frac{8}{15} \times \frac{5}{16}$ (c) $\frac{10}{27} \times \frac{18}{25}$

3. Convert the following mixed numbers to improper fractions, simplify then solve. Write answers in their simplest form and as mixed numbers (when appropriate).

(a) $4\frac{4}{5} \times 1\frac{9}{16}$ (b) $4\frac{4}{9} \times 1\frac{5}{16}$ (c) $4\frac{1}{6} \times 2\frac{7}{10}$

4. Find the following:

(a) $\frac{2}{3}$ of 27 (b) $\frac{5}{6}$ of 36 (c) $\frac{3}{8}$ of 56

(d) $\frac{4}{9}$ of $\frac{15}{16}$ (e) $\frac{3}{8}$ of $\frac{14}{15}$ (f) $\frac{7}{9}$ of $\frac{27}{49}$

(g) $\frac{3}{4}$ of $4\frac{7}{9}$

5. Find the following:

(a) $\frac{2}{3}$ of 15 m (b) $\frac{5}{6}$ of \$42 (c) $\frac{3}{8}$ of 96 kg

6. Solve these problems writing answers as mixed numbers in their simplest form (when appropriate).

(a) $\frac{6}{11} \div \frac{4}{5}$ (b) $\frac{10}{21} \div \frac{5}{14}$ (c) $\frac{5}{9} \div \frac{10}{21}$

(d) $8 \div 2\frac{1}{2}$ (e) $3\frac{2}{5} \div 4\frac{6}{7}$ (f) $6\frac{2}{9} \div 7$

7. (a) How many 7's are in 64?

(b) How many 7's are in 4?

(c) How many $\frac{3}{4}$'s are in 15?

(d) How many 15's are in $\frac{3}{4}$?

Master Maths 8 Worksheet 11
Fractions - Problem Solving

11

Name: _____

1. On a camp there are 60 people. One night they cook pizzas for dinner and want to cook enough so that each person can eat one-quarter of a pizza.
How many pizzas will they need to cook?

2. A certain paint colour consists of three-quarters white, one-tenth blue and the remainder yellow.
(a) What fraction of the paint is yellow?

(b) If 20 litres of the paint are to be mixed, how many litres of each colour are needed?

White Blue Yellow

3. The following amounts of seeds are mixed together to make a bird seed.

$3\frac{1}{2}$ kg of sunflower seeds

$4\frac{3}{4}$ kg of wheat

$2\frac{1}{4}$ kg of wattle seed

$1\frac{3}{4}$ kg of corn

(a) What would the total amount of birdseed weigh?

(b) The mixed birdseed is divided into 7 bags. What would each bag weigh?

4. There were 900 students in a school.
One-fifth of these were in year 8.
Three-quarters of the year 8 students went on a camp.
One-third of the students on camp went canoeing.
How many students went canoeing?

5. A shop ordered a crate containing 250 bottles of olive oil.
Each bottle weighed $2\frac{1}{2}$ kg.
What was the total weight of the bottles in the crate?

6. Joel ran laps of an oval for 30 minutes.
Each lap took him three-quarters of a minute.
How many laps did he run?

7. The population of seals in a colony was increasing by one-tenth every year. (The population at the end a year was one-tenth more than it was at the start of the year.)
The population at the start of a year was 2000.
How many seals would there be three years later?

Master Maths 8 Worksheet 12
Decimal Numbers

12

Name: _____

1. Write the following as decimal numbers.

(a) $\frac{3}{10}$ (b) $\frac{29}{100}$ (c) $\frac{37}{1000}$

(d) ninety-three ten-thousandths

(e) four hundred and five tenths

2. Write the following decimal numbers as fractions.

(a) 0.0145 (b) 7.0071 (c) 19.01206

3. Arrange these numbers in order from smallest to largest.

3.6021 3.6201 3.1026 3.1062 3.6012

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4. Choose the correct symbol (< or >) to place between the following pairs of numbers.

(a) 5.81 ☐ 5.65 (b) 6.001 ☐ 6.01

(c) 0.31 ☐ 0.28 (d) 8.099 ☐ 8.101

5. Add one hundredth to the following numbers.

(a) 5.673 (b) 6.3 (c) 8.592

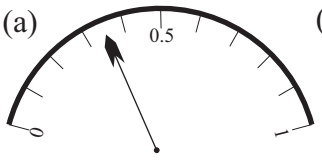
6. Add one thousandth to the following numbers.

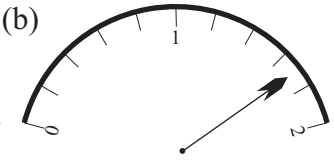
(a) 7.8 (b) 0.2496 (c) 1.999

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

(a) 8.5 and 8.6 (b) 3.46 and 3.51

8. Read the number shown on the following meters.

(a) 

(b) 

9. Round the amounts in the table below to:
(a) the nearest 5 cents.
(b) the nearest 10 cents.
(c) the nearest dollar.

Amount	Nearest 5c	Nearest 10c	Nearest dollar
$3.64			
$5.38			
$6.92			
$0.46			

10. Complete this table showing conversions between fractions and decimal numbers.

Fraction	Decimal
$\frac{3}{10}$	
$\frac{3}{4}$	
$\frac{2}{5}$	
$\frac{5}{8}$	
$12\frac{5}{8}$	
$23\frac{3}{25}$	

11. Change the following fractions to decimal numbers using a dot or bar to indicate the repeating digits.

(a) $\frac{8}{9}$ (b) $\frac{6}{7}$

Master Maths 8 Worksheet 13
Decimal Numbers - Operations

13

Name: _____

1. Solve the following problems without using a calculator and showing your workings.

(a) 8.9 + 7.3 (b) 17.83 + 9.7

(c) 34.56 + 7.983 + 18.107 + 0.68

(d) 85.917 - 36.186 (e) 62.5 - 9.672

(f) 45.26 × 5 (g) 567.8 × 0.9

(h) 83.7 × 29 (i) 4.568 × 0.83

(j) 875.5 ÷ 5 (k) 395.112 ÷ 6

2. Write the answers to the following problems. Give answers correct to 2 decimal places.

(a) 86.7 ÷ 8 (b) 411.7404 ÷ 6

3. Find the answers to the following problems.

(a) 92.5 ÷ 0.2 (b) 4.85 ÷ 0.005

4. Find the following answers without using a calculator.

(a) 3.5 × 100

(b) 0.0487 × 100 000

(c) 0.0467 × 1000

(d) 56.8 ÷ 100

(e) 89034.7 ÷ 1000

(f) 789.2 ÷ 100 000

5. Convert the following numbers into scientific notation.

(a) 70 000

(b) 855 000 000

6. Complete the following conversions.

(a) 3.75 km = _____ m

(b) 0.056 ML = _____ L

(c) 47 000 mg = _____ g

(d) 128 000 cm = _____ m

Master Maths 8 Worksheet 14
Decimal Numbers - Problem Solving

14

Name: _____

1. Find the following number:
- it has four digits
- it is bigger than one
- its four digits add to 10
- it has twice as many thousandths as tenths
- it has twice as many hundredths as thousandths

2. Mary came first in a 100 m sprint, Liz came second and Keira came third.
Mary's time was three hundredths of a second faster than the previous record of 12.67 seconds.
Mary was nine hundredths of a second faster than Liz. Liz was 0.35 seconds faster than Keira.
Find the times run by the three runners.

Mary	Liz	Keira

3. The following items were packed into a box to be posted. To get an approximate total weight of the packed box, round the weight of each item and the box to ***one decimal place*** and add them together.

Item	Weight	Rounded weight
Box	0.28 kg	
Books	3.34 kg	
Box of paint	2.59 kg	
Tools	4.83 kg	
Ceramic Pot	2.37 kg	
	Total	

4. A carpenter cut a 2.5 metre long timber plank into four equal lengths.
What is the length of each of the pieces?

5. A sweets company produces toffee in large blocks that weigh 18.75 kg. These large blocks are divided into 600 equal pieces.
(a) What is the weight of each small piece?

(b) The toffee is sold in small bags containing 20 of these small pieces.
What does each of these small bags weigh?

(c) How many pieces of toffee would be needed to make a bag weighing 1 kg?

6. A book containing 420 pages is 24 mm thick.
(a) How many sheets of paper are in the book?

(b) How thick is each sheet of paper?
Give answer correct to ***four decimal places.***

(c) How thick will be a book of 520 pages made with the same paper?
Give answer correct to ***one decimal place.***

7. Find the average height of these four people:
Sam: 1.57 m, Joe: 1.73 m, Kim: 1.68 m,
Zeb: 1.74 m

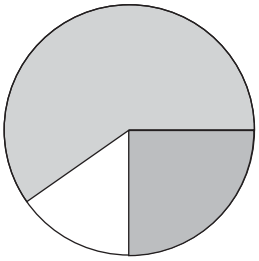
Master Maths 8 Worksheet 15
Percentages 1

15

Name: _____

1. Sarah and Jamie were the only two people running for the position of president of a football club.
Sarah received 43% of the vote.
What percentage of the vote did Jamie receive?

2. Choose from the list below the percentage that best indicates each area shown in this circle. Write the percentages in the areas.



60% 50% 25% 30% 70% 15% 10% 45%

3. Complete this table.

Fraction	Decimal	Percentage
$\frac{1}{2}$		
		10%
	0.2	
	0.7	
$\frac{3}{4}$		
	0.01	
		30%
	0.21	
$\frac{7}{8}$		
		$33\frac{1}{3}\%$

4. Write the following percentages as decimals.

(a) 250% (b) $\frac{1}{4}$ % (c) 0.01%

5. Wei achieved the following marks for four tests.

Maths	$\frac{45}{60}$	Science	$\frac{24}{30}$
English	$\frac{56}{80}$	Art	$\frac{24}{40}$

Change these marks to percentages.

Maths %

Science %

English %

Art %

In which subject did he achieve the best result?

6. Write the first quantity as a percentage of the second.

(a) 50 cm, 1 m %

(b) 45 seconds, 1 minute %

(c) 800 mL, 1 L %

(d) 260 g, 1 kg %

(e) 3 hours, 1 day %

Master Maths 8 Worksheet 16
Percentages 2

16

Name: _____

1. Find the following.

(a) 6% of 200 (b) 10% of 180

(c) 20% of 80 (d) 75% of 8

2. A drink states that it is 5% fruit juice and the container holds 500 millilitres.
How many millilitres of ***fruit juice*** are in the container?

mL

3. Yasha earns $42 000 per year.
She receives a 6% pay increase.
What is this increase in dollars?

$

4. A hardware store is offering 20% off the price of all items in the store.
Find the sale price of the following items.

(a) A lawnmower marked at $480

$

(b) A saw marked at $16.50

$

5. A bank offers an interest rate of 6.5% per annum .
If Gary deposits $5000 for a year, how much interest will he receive?

$

6. A blood alcohol reading of 0.05 means that 0.05% of the volume of blood in the person's body is alcohol.
The average man has about 5000 mL of blood in his body.
Find the number of millilitres of alcohol he would have in his bloodstream if he had a blood alcohol reading of 0.05.

mL

7. Baby Olive grew from 60 cm to 63 cm in one month.
What ***percentage*** growth occurred during this month?

%

Master Maths 8 Worksheet 17
Percentages 3

17

Name: _____

1. A vacuum cleaner retailer purchased a stock of the new SuperSuk vacuum cleaner for a wholesale price of $250 each. They apply a mark-up of 40%.
What will be the retail price of the SuperSuk?

$

2. A boat builder builds a small yacht. He spends $1000 on materials and $600 on labour costs. If he adds on a mark-up of 30% what will be the selling price of the yacht?

$

3. Jacko spent $450 on purchasing an old motorcycle. He spent $500 fixing it and then sold it for $1000.

(a) Did he make a profit or loss on the motorcycle?

(b) What was the size of the profit/loss? $

(c) What was the percentage profit/loss?

4. Jackie spent $150 on purchasing a dress. She spent $100 repairing it and then sold it for $200.

(a) Did she make a profit or loss on the dress?

(b) What was the size of the profit/loss? $

(c) What was the percentage profit/loss?

5. Gus owns a dog grooming business. The income and expenses for a year are shown below.

Income	
Washes	$16 000
Clipping	$12 500
Product Sales	$1500

Expenses	
Cleaning products	$3000
Equipment	$2500
Labour costs	$18 000
Other	$3500

(a) Did Gus make a profit or loss from his business?

(b) What was the size of the profit/loss? $

(c) What was the percentage profit/loss?

6. An item of artwork is produced for $550.

(a) How much GST needs to be added to this price? $

(b) What will be the retail price? $

7. The retail price for a swimsuit was $352. Find the amount of GST that is included in this price?

$

Master Maths 8 Worksheet 18
Ratio

18

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 **1:2:3** ☐ ☐ ☐

(e) $180 **4:5** ☐ ☐

2. Tim and Julie are to divide a prize in the ratio 2:3.

(a) What ***fraction*** does Tim get? ☐

(b) What ***percentage*** does Julie get? ☐ %

3. Write the following amounts as ratios in their simplest form.

(a) $30 : $90 ☐

(b) $64 : $32 : $8 ☐

(c) 35 m : 21 m ☐

(d) $600 : $200 ☐

4. The Bulldogs rugby team won 8 of their first 12 games. What is their win:loss ratio in its simplest form?

☐

5. A farmer discards 4 out of every 20 apples. What is the ratio of discarded apples to those kept?

☐

6. Cordial drink is made by mixing cordial syrup and water in the ratio 1:4.
How many litres of ***cordial syrup*** are required to be mixed with 12 litres of water?

☐ litres

7. Two builders are to be paid in the same ratio as their hours of work.
Adrian worked for 3 hours and Jeremy for 5 hours.
The total payment for the job was $160.
How much did each builder receive?

Adrian $ ☐

Jeremy $ ☐

8. The ratio of boys to girls at a particular school is 4:5.
If there are 600 boys, what is the ***total number of students*** at the school?

☐ students

9. Hair dye solution is made up in the ratio of 2 parts dye to 5 parts water.
If 350 mL of hair dye solution is to be made up, how much of the ***dye*** will be needed?

☐

Master Maths 8 Worksheet 19
Rates 1

19

Name: _____

1. If 3 kg of potatoes costs $1.50, how much will 10 kg of potatoes cost?

$ ____

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

A 500g for $2.00

B 1 kg for $3.80

C 2 kg for $7.80

____

3. An ostrich can run 80 metres in 4 seconds. How far would it run in 30 seconds at the same speed?

____ metres

4. Sally wants to purchase new carpet for her home. She selects one which costs $620 for 5 metres. Her home requires 12 metres. How much will the carpet cost?

$ ____

5. A particular car can travel 500 km on 50 litres of fuel.

(a) How far would it travel on 20 litres?

____ km

(b) How many litres would be used on a trip of 100 km?

____ litres

6. Which of these two cars provides better fuel economy?

Car A travels 400 km on 12 litres.

Car B travels 500 km on 16 litres.

____

7. The dose for a certain medicine is 2 ml for every 10 kg of body weight of the person. How much medicine should be given to the people below?

(a) Alex who weighs 30 kg.

____ mL

(b) Amelia who weighs 55 kg.

____ mL

Master Maths 8 Worksheet 20
Rates 2

20

Name: _____

1. Four runners recorded the times they each took to run a certain distance. These are shown in the table below.

Name	*Distance*	*Time*
Rafael	300 m	75 sec
Binh	1 km	3 min 20 sec
Sofia	1800 m	5 min
Feng	14.4 km	1 hr 20 min

Complete the table below showing the speed, in metres/sec (m/s), of each runner and how long it would take, in seconds, each runner to run 600 m.

Name	*Speed (m/s)*	*Time to run 600 m (s)*
Rafael		
Binh		
Sofia		
Feng		

2. (a) Jemmi measured her hair to be 150 mm long at the start of a year and 294 mm at the end of the year. By how much did it grow each ***month***?

mm

(b) How long would her hair be 6 months later?

mm

3. The population of a city was 200 000. It was growing at the rate of 3% each year.
(a) Find the population a year later.

(b) Find the population after another year.

4. The population of Belarus is approximately 9 000 000 and is decreasing by 0.5% each year. Find the approximate population after one year.

5. The number of numbats in a national park was estimated at 580. A year later the population was 620.
(a) Is the population increasing or decreasing?

(b) What is the percentage change in the population? Give answer to one decimal place.

(c) If the population changes at the same rate the following year find the population at the end of that year. Round to whole number.

Master Maths 8 Worksheet 21
Algebra - Symbols and Rules

21

Name: _____

1. Write the following as mathematical expressions.

(a) The sum of m and n

(b) The product of A and B

(c) 8 more than x

(d) 5 less than P

(e) The square of the sum of y and z

(f) The difference between the square of a and the square root of b

2. Write the following statements as mathematical equations.

(a) The sum of x and y is 4

(b) M is equal to the product of P and Q

(c) f is equal to 7 less than g

(d) y is equal to the square root of the sum of a and t

(e) T is equal to 9 more than the product of V and W

(f) Force (F) is equal to the product of pressure (P) and area (A).

(g) Energy (E) is equal to intensity (I) divided by the square of distance (d).

3. t = price of a ***ticket*** into a fun park
r = price of a ***ride*** in the fun park
Write the following statement using these symbols.

The price of 6 tickets and 8 rides is $100.

4. The cost for a handyman was $30 call-out fee plus $20 per hour.

(a) Write a formula that could be used to find the total cost (C) for calling out the handyman for t hours.

(b) How much would it cost for the handyman to do a job that took 3 hours?

(c) The bill from the handyman for another job was $150. How long did the job take?

5. Complete the table below for the following formula.

$$y = 2x - 5$$

x	1	2	3	6	9	12	20
y							

6. Complete the table below for the following formula.

$$a = 3b + 4$$

b	1	2	7	12			
a					13	28	64

Master Maths 8 Worksheet 22
Simplifying Algebraic Expressions

22

Name: _____

1. Simplify the following algebraic expressions.

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

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

(c) $3m + 2m + 5m - 4m - m$

(d) $5k - 7k + 3k - 4k$

(e) $-6c + 9c$

(f) $3x + 5y - x + 4y - 5x - 2y$

(g) $-6a - 7b + 3a - 4b + 5b$

(h) $-5m + 4n - 2m - 6n + 7m + 2n$

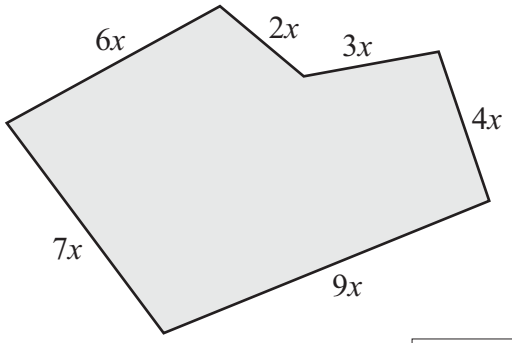
2. The cost of pumpkin was p dollars per kilogram .

(a) Find the cost of pumpkins that weigh the following:

(i) 3 kilograms (ii) 8 kilograms

(b) What would it cost to buy these two pumpkins?

3. Write an expression for the perimeter of this shape.



4. Simplify the following algebraic expressions.

(a) $3 \times 2 \times m$

(b) $a \times b$

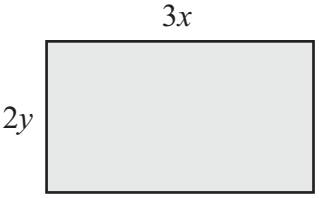
(c) $4 \times x \times 5 \times y$

(d) $6p \times 4q$

(e) $\frac{18m}{9}$

(f) $54d \div 9$

5. Write an expression for the area of this rectangle.



6. Sara is n years old. She is 5 years older than her sister Jodie and 3 years younger than her brother Brodie. Sara's mother is three times Sara's age.

Write expressions for their ages

Jodie Brodie Mother

Write an expression for the sum of all their ages (Sara, Jodie, Brodie and mother).

The sum of their ages is the same as Sara's grandmother who is 70 years old.

How old is Sara?

Master Maths 8 Worksheet 23
Indices

23

Name: _____

1. Simplify the following terms.

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

(b) $4 \times a \times a \times a \times a \times a \times a$

(c) $3 \times x \times x \times 5 \times x \times x \times 2 \times x$

(d) $6 \times d \times d \times d \times e \times e \times d$

(e) $2p \times 3p \times 4p \times 5p$

(f) $2m \times 2n \times 2m \times 2n \times 2n$

2. Simplify the following terms.

(a) $x^3 \times x^5$

(b) $a^7 \times a$

(c) $3x^7 \times 2x^6$

(d) $e^3 \times e^5 \times e^4$

(e) $2p^3 \times 3p \times 4p^6$

(f) $2m \times 2n^2 \times m^3 \times 3n^4 \times 2n^5$

3. Simplify the following terms.

(a) $(x^3)^5$

(b) $(n^2)^6$

(c) $(2x^6)^3$

(d) $(p^6q)^4$

(e) $(a^5b^4)^3$

(f) $(4x^6y^4z^7)^2$

4. Simplify the following terms.

(a) x^0

(b) $(n^2)^0$

(c) $(2x^6)^0$

(d) $3(y^3)^0$

(e) $5m^0 + 3(n^3)^0$

5. Simplify the following terms.

(a) $3(m^0)^2 \times 2m^4$

(b) $(3x^0y^3 \times 2y^0x^4)^2$

(c) $(2x^6 \times 2x^4)^2$

(d) $3(y^3 \times 2x^0)^4$

(e) $(3m^4)^0 \times 4(m^0)^3$

6. Write an expression for the area of this rectangle.

7. The product of a number, n, and three times the number is equal to 48.
Write this as an equation and find n.

Master Maths 8 Worksheet 24
Expansion and Factorisation

24

Name: _____

1. Expand the following expressions.

(a) $3(x + 5)$

(b) $4(a - 3)$

(c) $2(m + n)$

(d) $6(5 - p)$

(e) $a(b + 4)$

(f) $3(2a + 1)$

(g) $5x(3y - 2z)$

(h) $2m(3m + 4n)$

(i) $-3(5a + 2b)$

(j) $-2(5 - 4y)$

(k) $-6n(2n - 7)$

(l) $-2x(5x - 3y)$

2. Expand and simplify the following expressions.

(a) $4(x + 2) + 3(x + 5)$

(b) $3(2m + 5) + 2(4m - 3)$

(c) $5(2c - 3) + 2(3c - 6)$

(d) $3(6 - 5n) + 4(2 + n)$

(e) $4(2p + 5) - 3(3p + 4)$

(f) $6(2x - 3y) - 3(4x - 3y)$

3. Factorise the following expressions.

(a) $4a + 12$

(b) $5m - 15$

(c) $8x + 20$

(d) $10n - 35$

(e) $27p + 18q$

(f) $24x - 36y$

(g) $a^2 + 5a$

(h) $4xy - 6x$

(i) $5m - 15m^2$

(j) $12a^2 + 18ab$

(k) $28m - 35m^2n$

(l) $-18x^2y - 24xy$

Master Maths 8 Worksheet 25
Linear Relationships 1

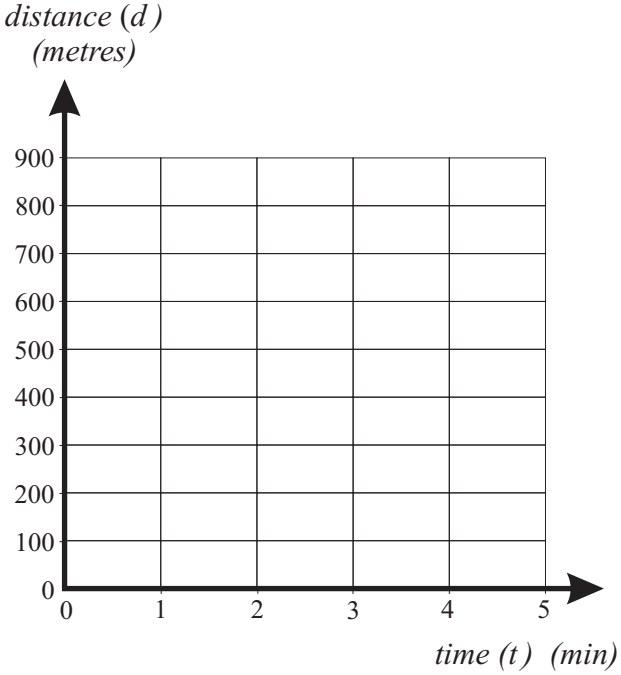
25

Name: _____

1. The distances (in metres) and times (in minutes) for Tricia, jogging, and Faye, walking, are shown below.

Time (min)	0	1	2	3	4	5
Tricia	0	180	360	540	720	900
Faye	0	100	200	300	400	500

(a) Plot the points for both Tricia and Faye on the axes below.
Connect the points with smooth lines.



(b) Find a rule connecting d and t for Faye and Tricia.

Tricia $d =$ _____

Faye $d =$ _____

(c) How far would each person travel in ten minutes?

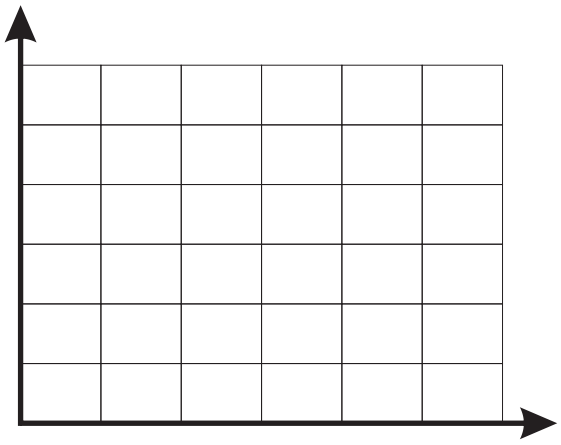
Tricia _____ m

Faye _____ m

2. Two sales people have each negotiated different contracts with their employer.
Michael negotiated \$20 per hour.
Karen negotiated \$15 per hour plus \$20 per day.
(a) Complete this table showing how much each person has earned after the number of hours worked.

Time (hrs)	1	2	3	4	5	6
Michael						
Karen						

(b) Show this information on a graph.
Draw two lines, one for Michael and one for Karen.
Label each axis and include their scales.



(c) Find a rule connecting amount earned (A) and number of hours worked (n) for each person.

Michael $A =$ _____

Karen $A =$ _____

(d) After how long at work have they both earned the same amount?

_____ hours

(e) Who do you think was the better negotiator? Why?

_____

_____

_____

Master Maths 8 Worksheet 26
Linear Relationships 2

26

Name: _____

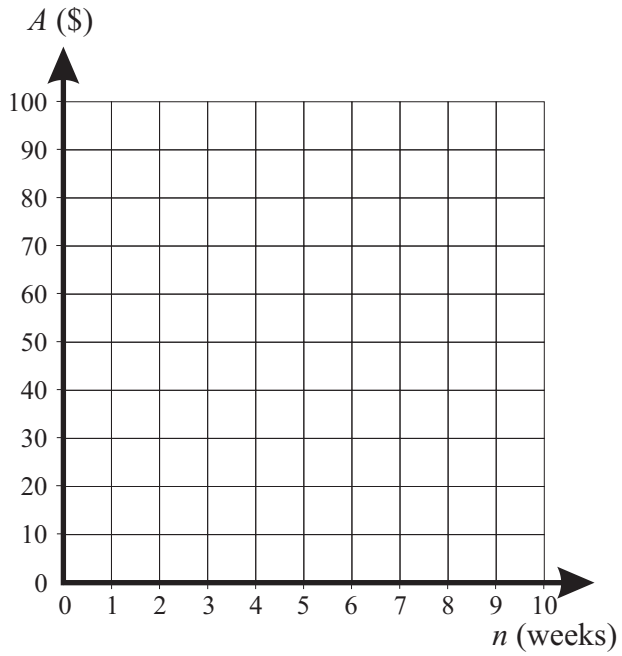
1. James has \$100 in his bank account and withdraws \$5 each week.
William has \$20 in his account and deposits \$5 each week.

(a) Write an equation for the amount A in each of their accounts after n weeks.

James $A =$

William $A =$

(b) Represent this information on the axes shown.



(c) After how many weeks do they have the same amount in their accounts?

_____ weeks

(d) After how many weeks will James have no money in his account?

_____ weeks

(e) After 20 weeks how much will William have in his bank account?

\$ _____

2. (a) For each of the following formulae complete the table of values shown.
(b) Plot the points for each table of values on the axes below.
(c) Circle the formulae that resulted in straight lines.

$y = 4x$

x	0	1	2	3	4	5
y						

$y = 3x + 2$

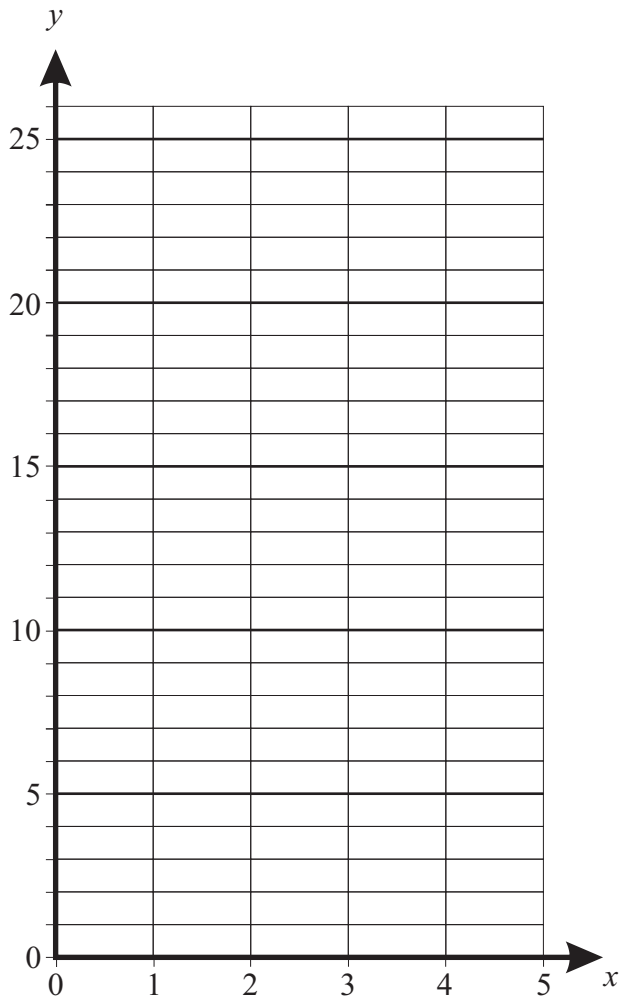
x	0	1	2	3	4	5
y						

$y = x^2 + 1$

x	0	1	2	3	4	5
y						

$y = 20 - x$

x	0	1	2	3	4	5
y						



Master Maths 8 Worksheet 27
Solving Equations 1

27

Name: _____

1. Find the following numbers.

(a) This number is 7 more than 12.

(b) If 24 is divided by this number the answer is 8.

(c) If 6 is added to this number and the result is halved the answer is 9.

(d) If this number is multiplied by 4, then 5 is subtracted from the result the answer is 23.

2. (a) Evie is six years older than Jess. The sum of their ages is 26. How old is Evie?

(b) A 16 metre length of timber is cut into two pieces. One is 4 metres longer than the other. What are the lengths of the two pieces of timber?

3. Solve the following equations.

(a) $x + 7 = 13$

(b) $y - 8 = 9$

(c) $4m = 24$

(d) $\frac{n}{3} = 7$

(e) $3x - 4 = 11$

(f) $5n + 9 = 39$

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

(h) $\frac{x - 2}{6} = 4$

(i) $3n - 5 = -17$

(j) $\frac{2x}{3} + 4 = 10$

(k) $3(m + 6) = 12$

(l) $\frac{2x + 7}{3} = 7$

(m) $4(2a - 9) = -4$

(n) $\frac{6n + 5}{4} = 5$

4. Write the following statements as equations and then solve.

(a) If a number, n, is multiplied by 3 and then 8 is added to the result the answer is 20.

(b) If a number, x, is divided by 7 and then 8 is subtracted from the result the answer is -6.

Master Maths 8 Worksheet 28
Solving Equations 2

28

Name: _____

1. Find the value of x in the following equations.

(a) $4x + 5 = 3x + 7$

(b) $5x - 6 = 4x - 2$

(c) $7x - 4 = 3x + 8$

(d) $5x + 7 = 3x - 1$

(e) $6x + 8 = 4(x + 3)$

(f) $6x + 7 = 2x - 13$

(g) $5(x - 3) = 2x - 21$

(h) $6x - 3 = x - 3$

2. Write the following statements as equations then solve.

(a) Let the weight of a box of oranges be w kg.
Six boxes plus 12 kg weighs 102 kg.
Find the weight of a box of oranges.

(b) Juan bought five batteries and received change of $15 from $50.
Use p as the price of the battery when writing and solving the equation.

(c) Trinity and Meika went to a show, each taking the same amount of money.
Trinity bought 6 show bags and had $8 change.
Meika bought 4 show bags and had $22 change.
Let p represent the price of a show bag when writing and solving the equation.

Master Maths 8 Worksheet 29
Substitution and Transposition

29

Name: _____

1. For the equation below find the values for y for the given values of x.

$$y = 2x + 5$$

(a) $x = 3$ (b) $x = 11$ (c) $x = 50$

$y =$	$y =$	$y =$

2. Find the value of y in the following equations if $x = 4$.

(a) $y = 3x^2$ (b) $y = 5x - 7$ (c) $y = \frac{3x + 12}{8}$

$y =$	$y =$	$y =$

3. Solve the following equations for the values given.

(a) $P = 3V^2 + \frac{Q}{4}$ $(V = 5, Q = 28)$

$P =$

(b) $s = at + \frac{1}{2}at^2$ $(a = 6, t = 2)$

$s =$

(c) $F = \frac{mv^2}{R}$ $(m = 10, v = 3, R = 5)$

$F =$

(d) $G = \frac{3(M - 2N)}{2P}$ $(M = 40, N = 12, P = 4)$

$G =$

(e) $U = mgh + \frac{5m^2}{4}$ $(m = 8, g = 10, h = 3)$

$U =$

4. Transpose the following equations to make the term in the brackets the subject.

(a) $y = x + 6$ (x) (b) $m = n - p$ (n)

$x =$	$n =$

(c) $M = 5N$ (N) (d) $A = \frac{B}{F}$ (B)

$N =$	$B =$

(e) $G = 3H - K$ (H) (f) $y = \frac{x}{6} + C$ (x)

$H =$	$x =$

(g) $b = ac - 2d$ (c) (h) $P = \frac{Q + R}{3T}$ (Q)

$c =$	$Q =$

5. Power (P) is equal to the product of the current (I) squared and resistance (R).

(a) Write this as an equation.

$P =$

(b) Transpose this equation to make I the subject.

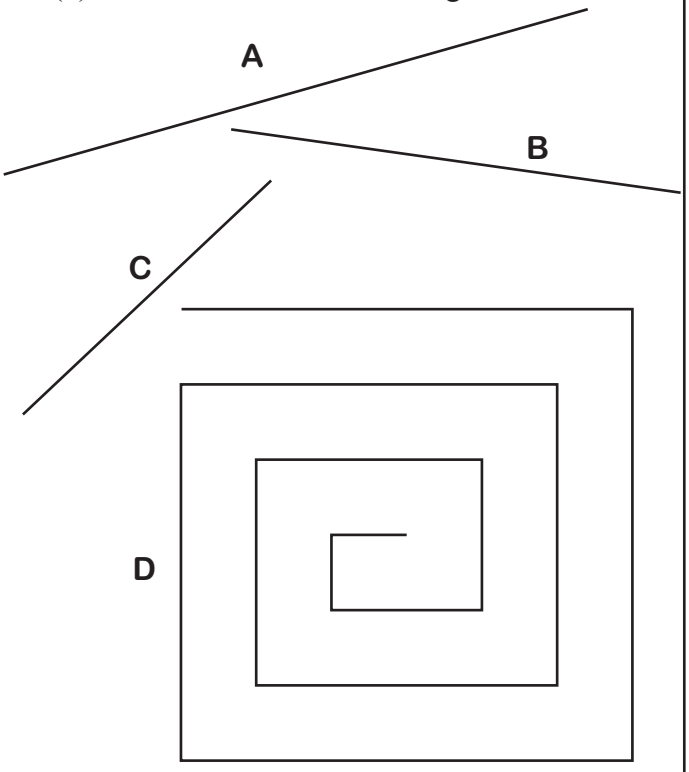
$I =$

Master Maths 8 Worksheet 30
Length

30

Name: _____

1. (a) Estimate (in cm) the length of these four lines and record your estimate in the table below.
(b) Measure and record the length of the lines.



Line	Estimate	Length
A		
B		
C		
D		

2. (a) Guess the diameter of the Earth.

(b) Find the measurement for the diameter of the Earth and state where you found it.

3. Complete the following conversions.

(a) 4 cm = _____ mm

(b) 7 m = _____ cm

(c) 670 mm = _____ cm

(d) 2.5 km = _____ m

(e) 650 m = _____ km

(f) 785 cm = _____ m

(g) 0.056 m = _____ mm

(h) 4.8 m = _____ cm

4. How many millimetres are in a kilometre?

5. A snail is sliding at 3 mm every second. How far will it travel in 2 minutes? Give answer in ***cm***.

6. Round the following lengths to the nearest ***cm***.

(a) 6.3 cm (b) 87 mm (c) 0.356 m

7. Change the following lengths to ***cm***.

(a) 2 m 18 cm (b) 43 cm 8 mm

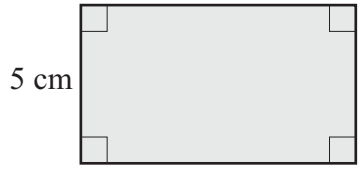
Master Maths 8 Worksheet 31
Perimeter

31

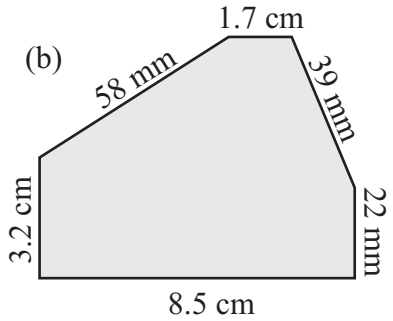
Name: _____

1. Find the perimeter of these shapes.

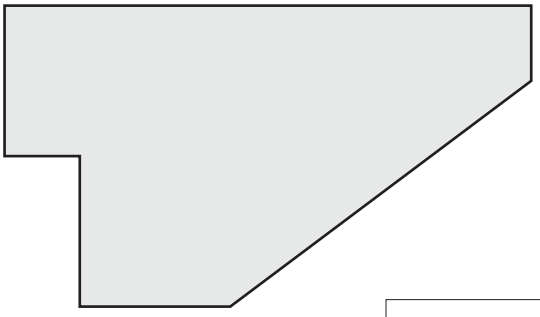
(a)



(b)



2. Measure the perimeter (in cm) of this shape.

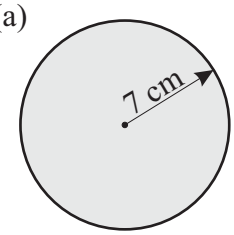


3. The perimeter of a square park is 1.3 km.
What is the side length (in m) of the park?

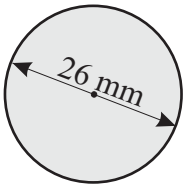
4. A jogger knows each of her strides is 85 cm.
She jogs around a rectangular park and counts 250 strides on one side and 120 on the other side of the park.
What is the perimeter (in m) of the park?

5. Find the circumference of the following circles.
Give answers correct to one decimal place.

(a)



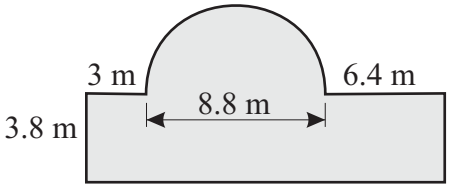
(b)



6. (a) Find the circumference of a circle with a diameter of 6.9 cm.
Give answer correct to one decimal place

(b) Find the circumference of a circle with a radius of 0.8 m.
Give answer correct to one decimal place

7. Find the perimeter of the following shape.
Give answer correct to one decimal place.



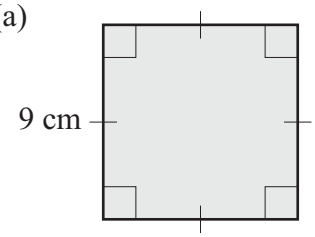
Master Maths 8 Worksheet 32
Area

32

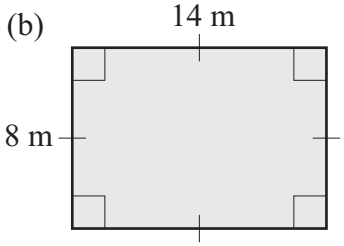
Name: _____

1. Find the area of the following shapes.

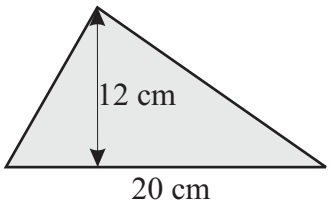
(a)



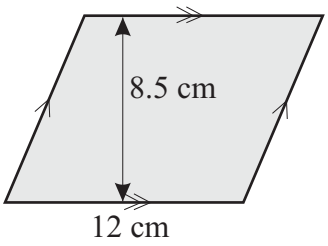
(b)



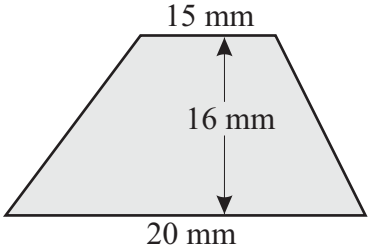
(c)



(d)



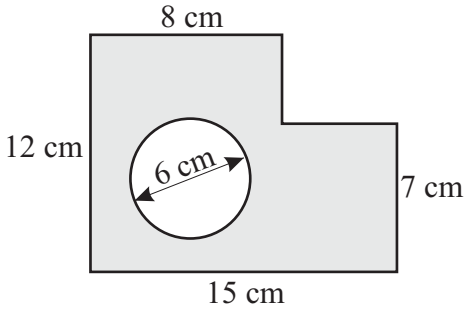
(e)



2. (a) Find the area of a circle with a diameter of 18 cm.
Give answer correct to one decimal place.

(b) Find the area of a circle with a radius of 12.6 cm.
Give answer correct to one decimal place.

3. Find the shaded area of this shape.
Give answer correct to one decimal place.



4. Blake has a rectangular yard that is 15 metres long and 12 metres wide. In the yard there is a circular fish pond with diameter 6 metres and a shed that is 6 metres long and 4 metres wide. Blake wants to spread gravel over the rest of the yard. What is the area to be gravelled?
Give answer correct to one decimal place.

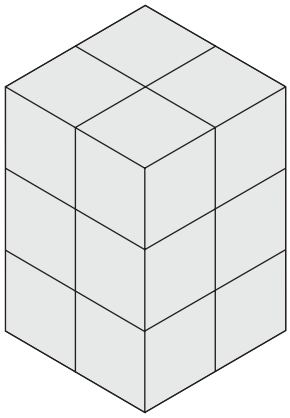
Master Maths 8 Worksheet 33
Total Surface Area 1

33

Name: _____

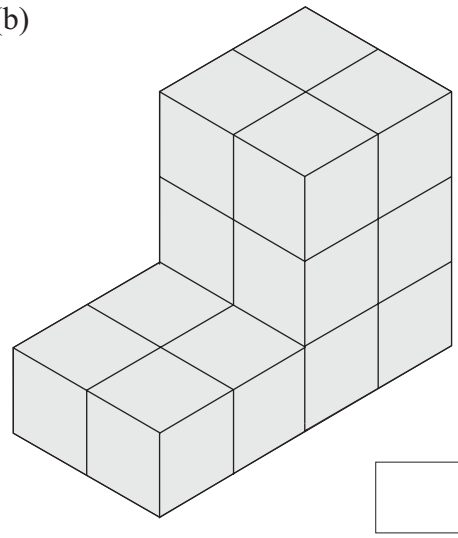
1. These shapes are made from one centimetre cubes.
Find the ***total surface area*** of each shape.

(a)



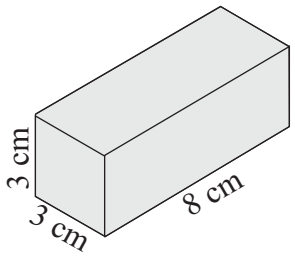
_____ cm^2

(b)



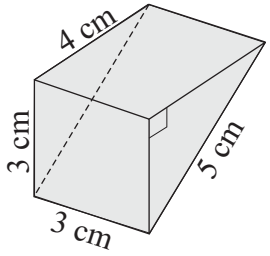
_____ cm^2

2. Calculate the ***total surface area*** of this shape.



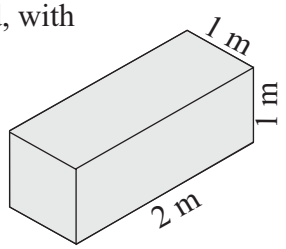
_____ cm^2

3. Calculate the ***total surface area*** of this shape.



_____ cm^2

4. The box, including a lid, with dimensions shown is to be made from particle board.



(a) What is the ***total surface area*** of this box?

_____ m^2

(b) If the cost of particle board is \$20 per m^2, what would it cost to make the box? Assume there is no wastage.

\$ _____

(c) If the box is to be made from one large sheet of board with no waste, which of the following sizes would you choose? Draw a diagram.

A 4 m × 4 m **B** 3 m × 4 m
C 5 m × 2 m **D** 4 m × 2 m

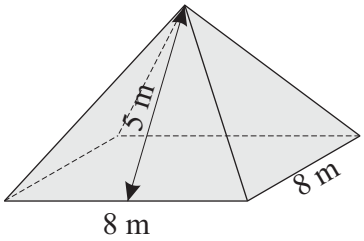
☐

Master Maths 8 Worksheet 34
Total Surface Area 2

34

Name: _____

1. Find the total surface area of this pyramid.



m^2

2. The surface area (SA) of a sphere (ball) is given by the formula

$$SA = 4\pi r^2$$

where r is the ***radius*** of the sphere.

Find the surface area of a basketball if the ***diameter*** of a basketball is 24 centimetres. Give answer correct to ***one*** decimal place.

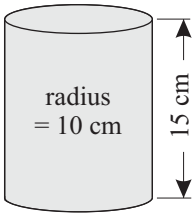
cm^2

3. The total surface area of a cylinder is given by the formula

$$SA = 2\pi r(r + h)$$

where r = radius and h = height.

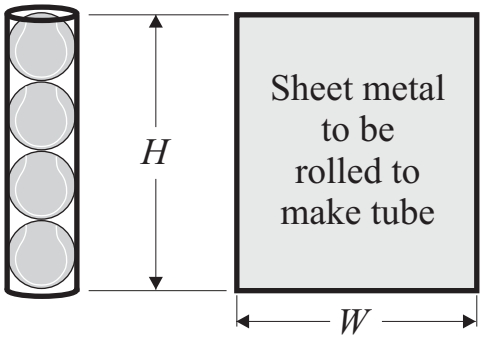
Find the total surface area of this cylinder. Give answer correct to ***one*** decimal place.



cm^2

4. A tube is to be made to hold 4 tennis balls as shown.

(a) Find the dimensions of the piece of sheet metal required to make the ***curved*** part of this tube if the ***radius*** of a tennis ball is 32 mm.
Give answers to the nearest whole number.



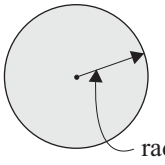
$H =$ mm

$W =$ mm

(b) Find the area of this piece of sheet metal.

mm^2

(c) Find the ***area*** of the top of this tube.
Give answers to the nearest whole number.



mm^2

(d) Find the ***total surface area*** of this container.

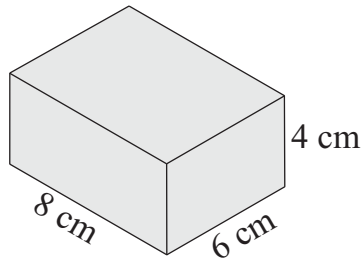
mm^2

Master Maths 8 Worksheet 35
Volume

35

Name: _____

1. Calculate the volume of this object.



_____ cm^3

2. Complete the following conversions.

(a) 2 litres = _____ cm^3

(b) 5 m^3 = _____ litres

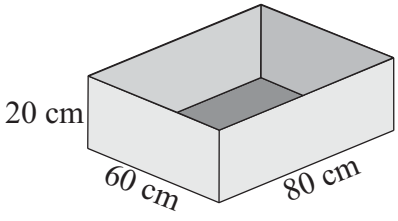
(c) 6000 cm^3 = _____ litres

(d) 700 litres = _____ m^3

(e) 3400 cm^3 = _____ litres

(f) 0.21 m^3 = _____ litres

3. How many litres of water would it take to fill the container below?

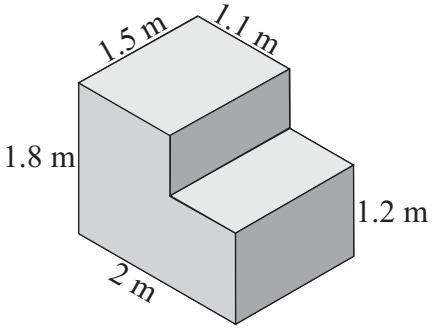


_____ litres

4. How many 250 mL glasses could be filled from a 3 L container of juice?

_____

5. Find the volume of this object.
Give answer in m^3 and litres (L).



_____ m^3

_____ L

6. Top soil is to laid over a sporting ground. The sporting ground is rectangular in shape and is 100 metres long and 40 metres wide. The top soil is to be 10 cm deep.

(a) How many cubic metres (m^3) of top soil is required?

_____ m^3

(b) If the top soil cost $25 per cubic metre, find the total cost.

_____

7. A teaspoon holds about 5 cm^3 of liquid. Dudley needs to take 30 mL of medicine. How many teaspoons is this?

_____

Master Maths 8 Worksheet 36
Time

36

Name: _____

1. Complete the following conversions.

(a) 2 minutes = ☐ seconds

(b) 3 hours = ☐ minutes

(c) 4 days = ☐ hours

(d) 0.6 seconds = ☐ milliseconds

(e) 1 day = ☐ minutes

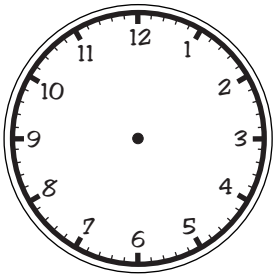
(f) 6 decades = ☐ years

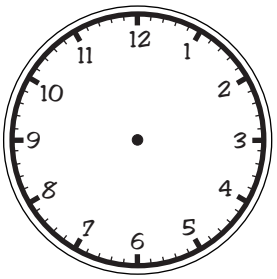
2. Complete this table showing conversions between 12 hour time and 24 hour time.

12 hour time	24 hour time
6:30 am	
2:30 pm	
9:47 pm	
8:07 am	
	0950
	1525
	1706
	2237

3. On the clock faces below draw the hands showing the following times.

(a) 8:25 (b) twenty to three





4. From the years shown below circle the leap years.

1824 1700 1920

2056 2400 1570

5. On a particular day the sun rose at 6:34 am and set at 7:16 pm.
How many daylight hours and minutes were there?

☐ hrs ☐ min

6. The Browne family left on Wednesday the 25th of September for a trip around Europe. They returned 100 days later.
What was the day and date when they returned?

☐

7. Halley's comet is the most famous of the comets. It is seen every 76 years. It was last seen in 1986.
(a) When will it be seen next?

☐

(b) Isaac Newton saw a large comet in 1682. Could it have been Halley's comet?

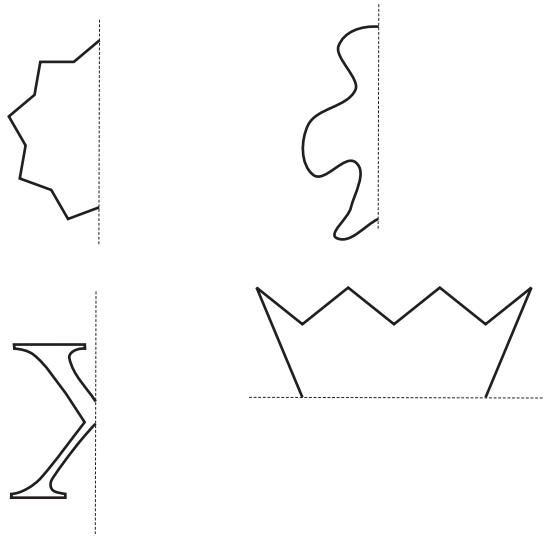
☐

Master Maths 8 Worksheet 37
Symmetry and Reflections

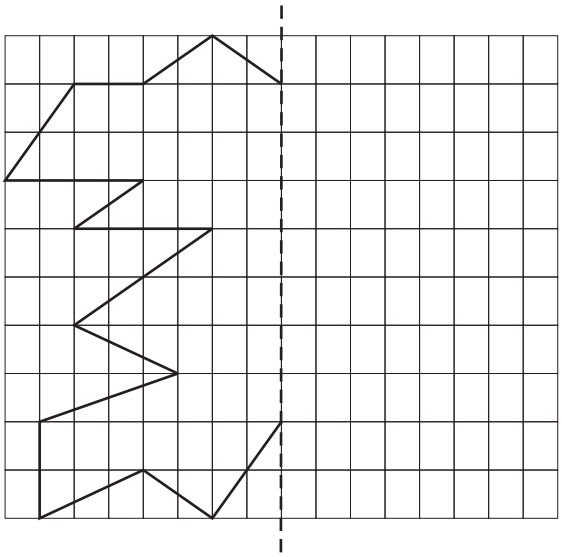
37

Name: _____

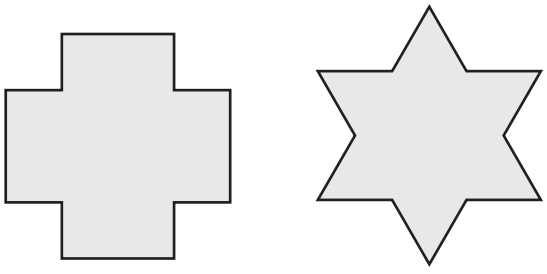
1. Complete these symmetrical shapes by drawing the other half.



2. Complete this symmetrical shape by drawing its other half.



3. Draw ***all*** the axes of symmetry on the following shapes.

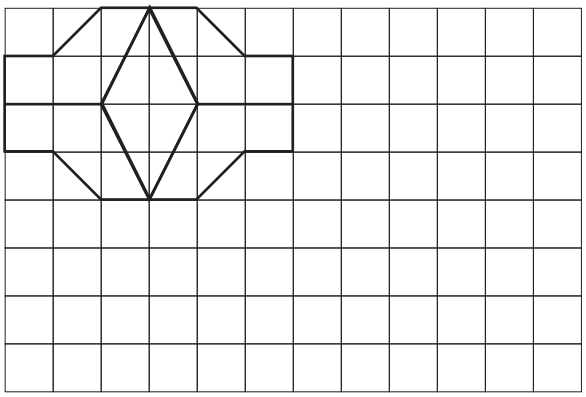


4. (a) Jayme woke up one morning and saw the reflection of her clock in the mirror. The reflection is shown here.

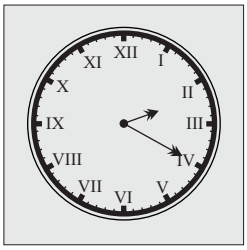
What was the actual time?

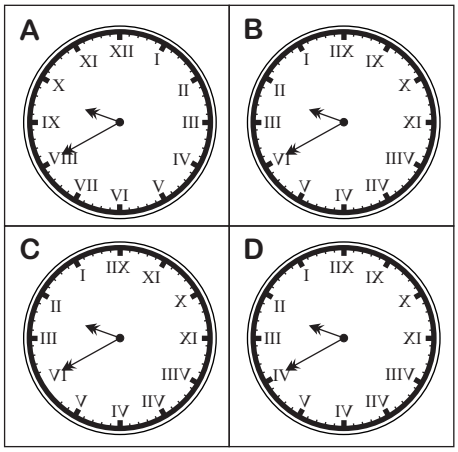
(b) The next day Jayme wanted to get up early to go for a jog. She again looked at the time in the mirror and got up one hour earlier than she wanted to.
What time did she want to get up?

5. Complete this pattern using reflections of the shape. Creatively colour it in.



6. Colour in the clock below that is a reflection of this clock.



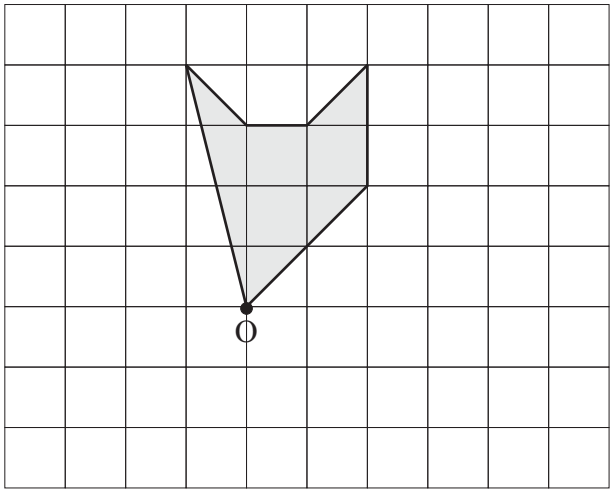


Master Maths 8 Worksheet 38
Rotations and Translations

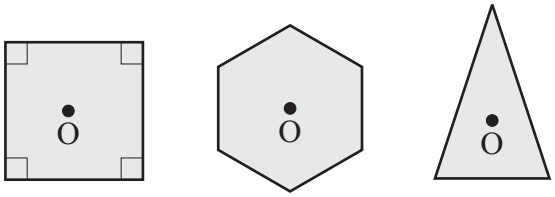
38

Name: _____

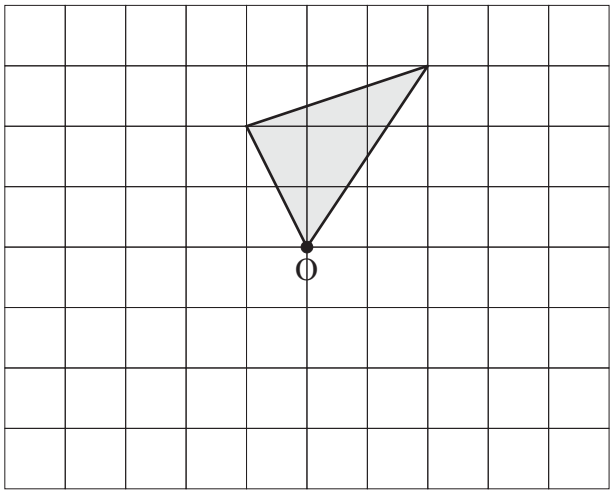
1. Rotate the shape on the grid below by 90° ***clockwise*** about O and redraw it.



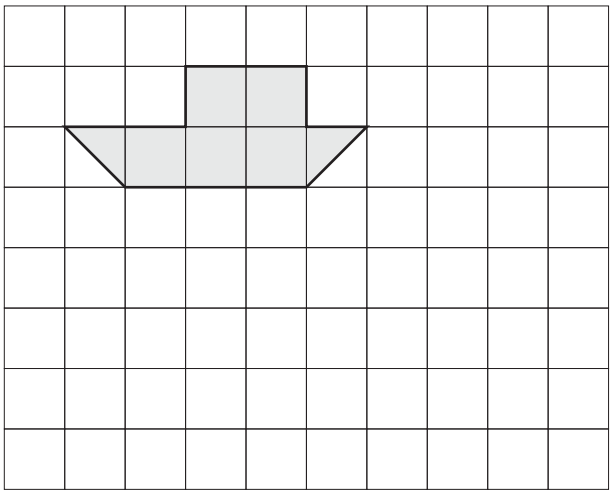
2. What is the minimum angle of clockwise rotation about O for these shapes to appear the same?



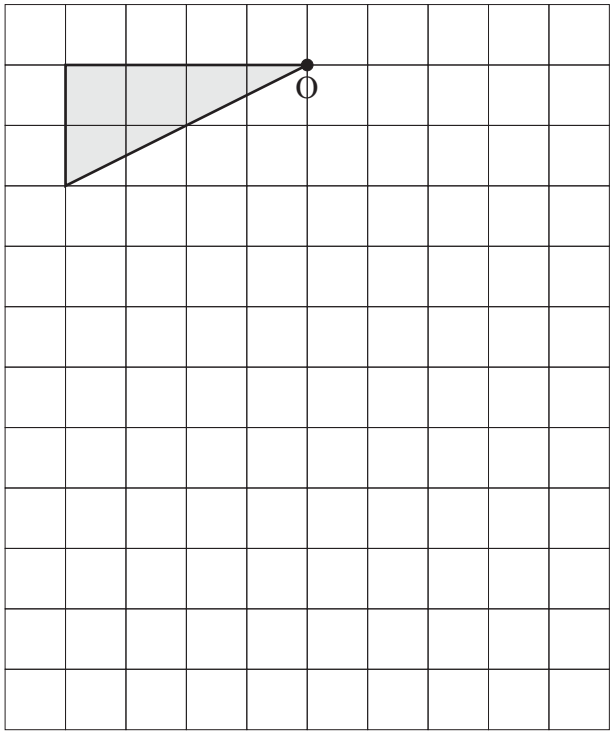
3. (a) Rotate the shape below 90° clockwise about O and redraw it.
(b) Rotate the shape by 180° and redraw it.
(c) Rotate the shape by 270° clockwise and redraw it.



4. Translate the shape on the grid below 3 units to the right and 4 units down and redraw it.



5. (a) Translate the shape shown below 3 units to the right, 4 units down and redraw it.
(b) Rotate the shape 90° anticlockwise about O then translate it 6 units down and redraw it.
(c) Rotate the shape 90° clockwise about O then translate it 2 units to the right, 10 units down and redraw it.
(d) Rotate the shape 180° about O then translate it 1 unit left, 6 units down and redraw it.

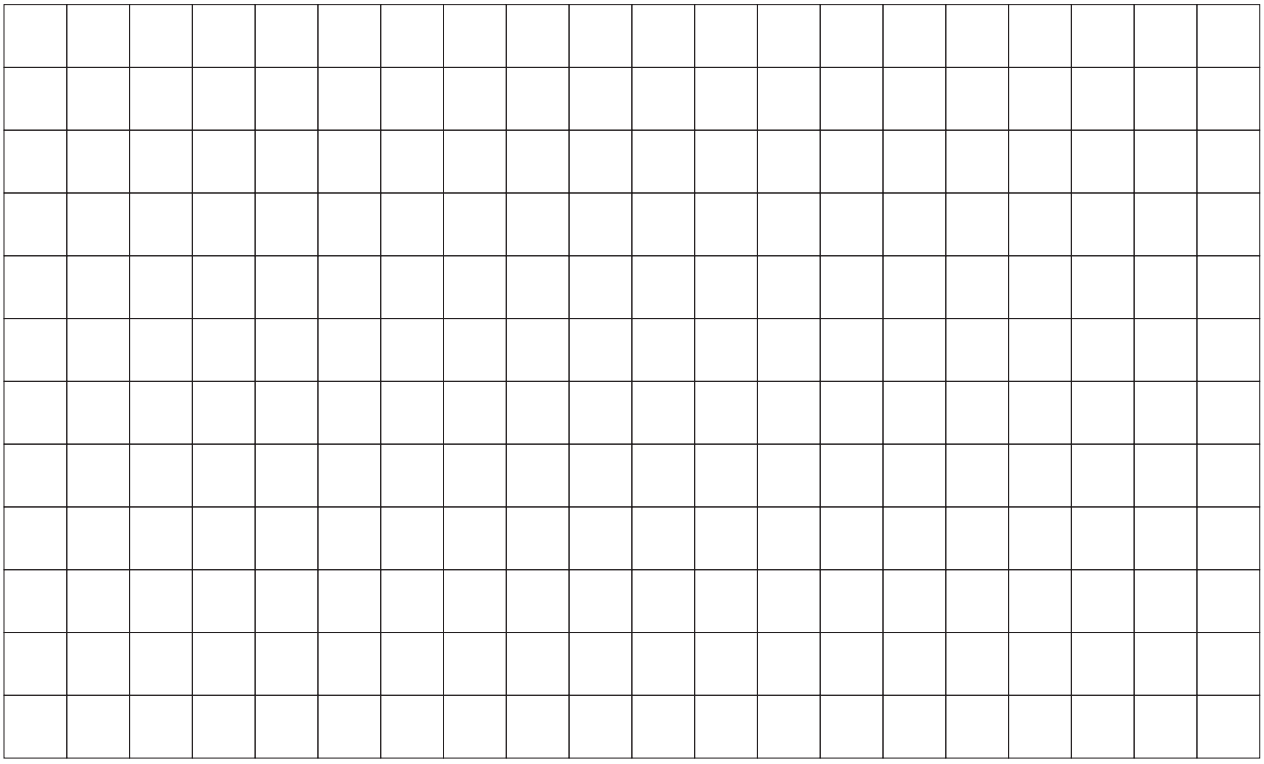


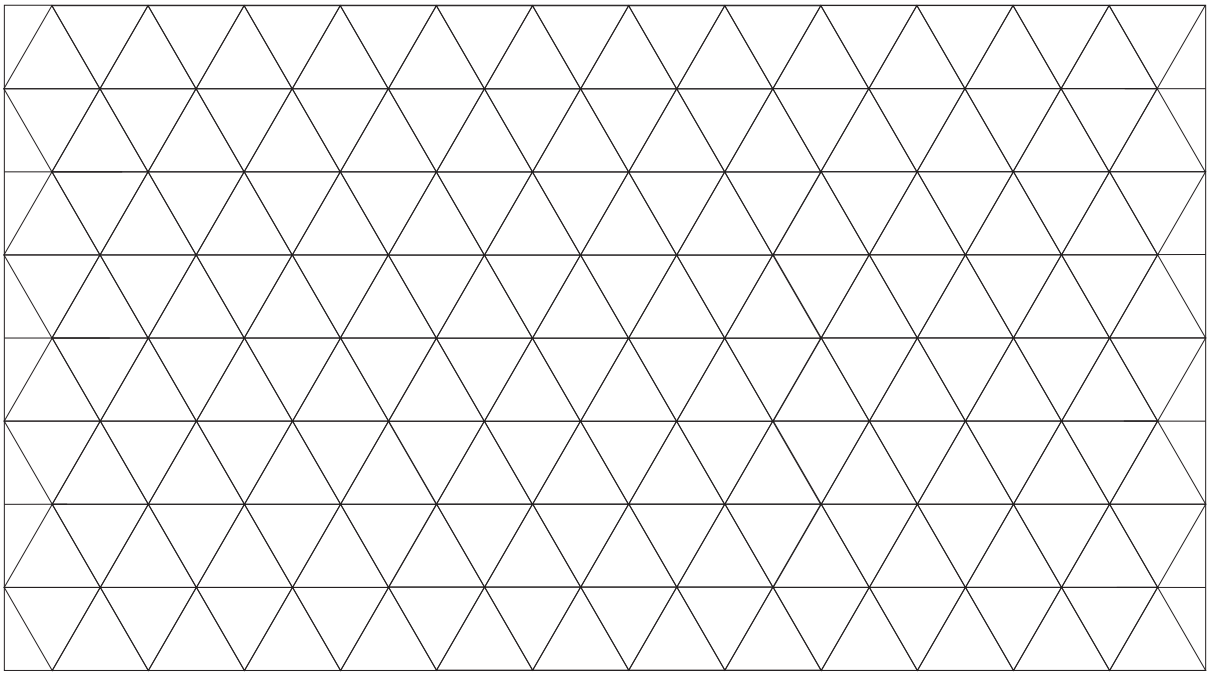
Master Maths 8 Worksheet 39
Tessellations

39

Name: _____

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



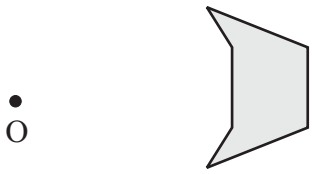


Master Maths 8 Worksheet 40
Enlargements

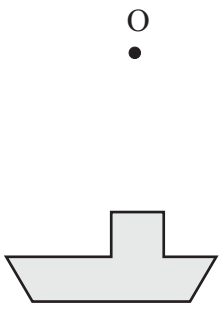
40

Name: _____

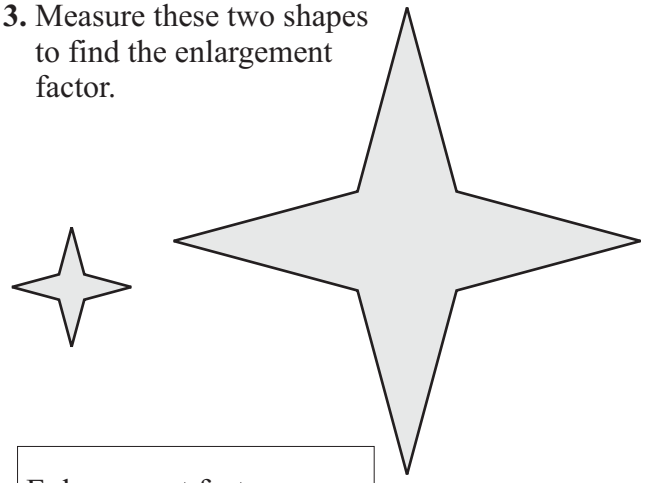
1. Use point O to form projection lines and use these to draw this shape enlarged by a factor of 2.



2. Use point O to form projection lines and use these to draw this shape enlarged by a factor of 3.

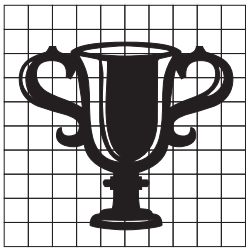


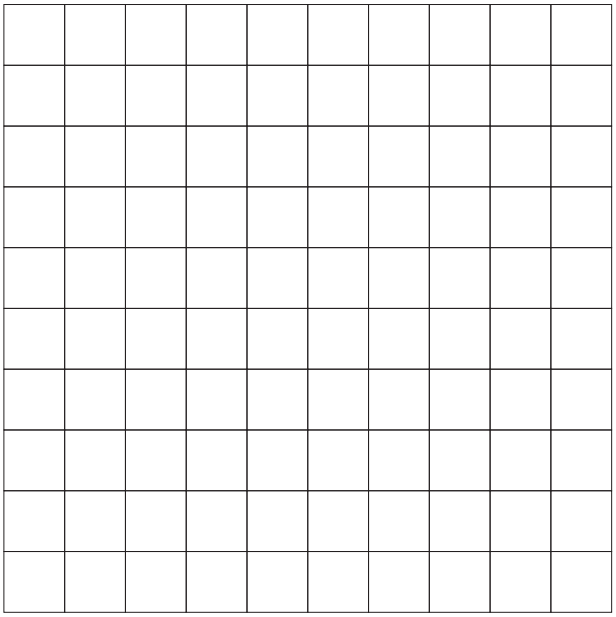
3. Measure these two shapes to find the enlargement factor.



Enlargement factor =

4. Redraw this picture on the grid below.





Master Maths 8 Worksheet 41
Similar and Congruent Triangles

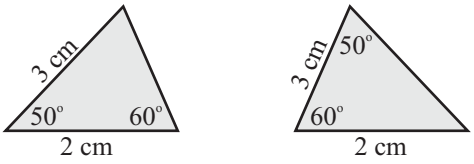
41

Name: _____

1. State whether the following statements are true or false.

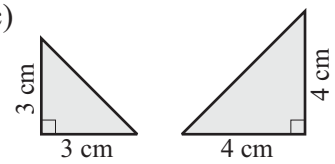
(a) For two triangles to be similar all the angles in one must be the same as all the angles in the other.

(b)



These two triangles are congruent.

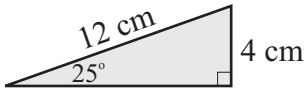
(c)



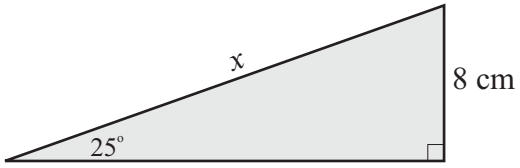
These two triangles are similar.

2. Find the value of x in the following pairs of triangles.

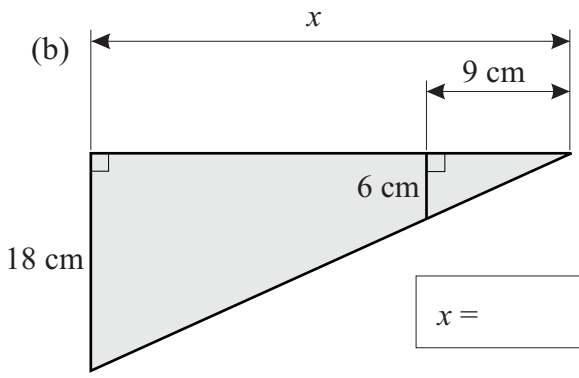
(a)



$x =$

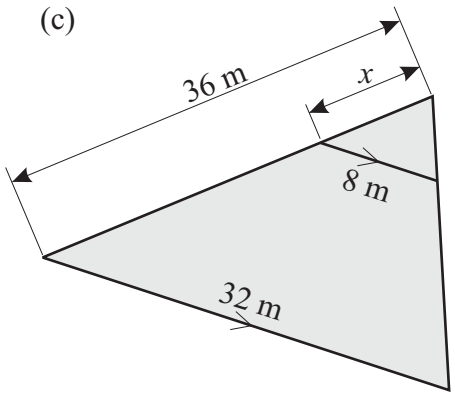


(b)



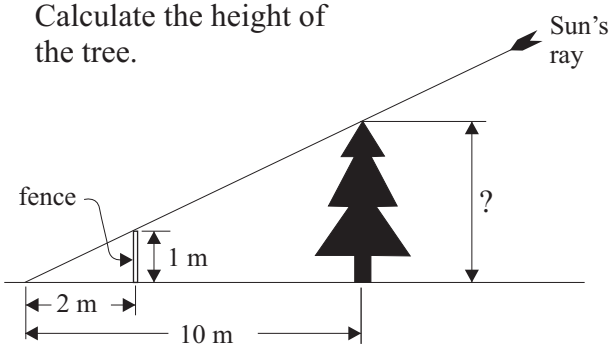
$x =$

(c)



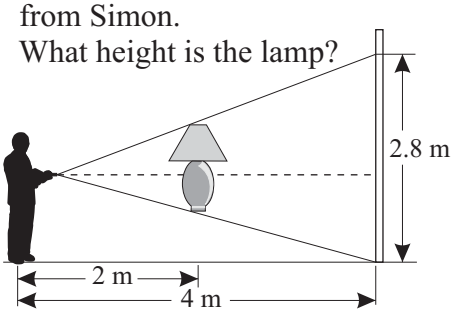
$x =$

3. The Sun casts a shadow of a tree and a fence as shown in the diagram below. Calculate the height of the tree.



Height of tree = metres

4. The diagram shows Simon shining a torch at a table lamp and onto a wall.
The lamp is 2 metres from Simon.
The shadow of the lamp on the wall is 2.8 metres high and the wall is 4 metres from Simon.
What height is the lamp?



metres

Master Maths 8 Worksheet 42
Scale Factors

42

Name: _____

1. Clancy has scale statues of several birds. The statues are one fifth full size (scale factor 1:5).

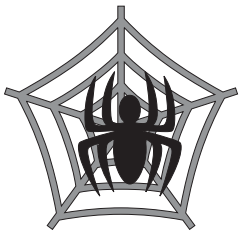
(a) If one of the statues was 8 cm tall, how tall was the actual bird?

cm

(b) One of Clancy's statues was of a bird that had a wingspan of 80 cm. What was the wingspan of the statue?

cm

2. A model spider is made and measures 24 cm long.
If the actual spider is 4 cm long, what is the scale factor?



Scale factor =

3. Complete this table converting between metres (m) and centimetres (cm).

m	cm
1	
3	
4.5	
	500
	800
	930

4. Fiona has a doll's house that is one tenth full size (scale factor = 1:10).
Fiona wants to make furniture for her doll's house. Find the dimensions (in cm) of the models of the following items of furniture.

(a) Desk: 140 cm × 90 cm × 80 cm high

cm × cm × cm high

(b) Wardrobe: 2 m high × 2.4 m long

cm × cm long

5. Zane collects models of cars. All his models have a scale factor of 1:20.
Complete the table below that shows the lengths of several of his models (in ***cm***) and the actual cars (in ***m***) they are models of.

Length of model (cm)	Length of car (m)
10	
12	
	3
	3.6

6. Joe found a red-backed spider that had a body that was 4 mm long. He drew a scale drawing of the spider using a scale of 1:30.
How long (in ***cm***) would be the body in his drawing?

cm

7. Joe wanted to draw a picture of the largest known spider. This is the goliath bird-eating spider. The biggest one found had a leg span of 280 mm.
What would be the leg span (in ***m***) of his drawing if he used the same scale (1:30)?

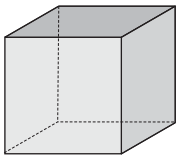
m

Master Maths 8 Worksheet 43
3 Dimensional Objects

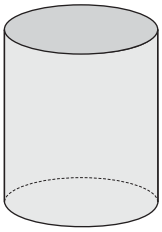
43

Name: _____

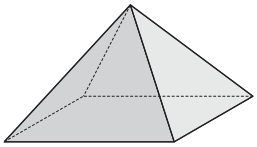
1. Next to each object below sketch it and write its name.



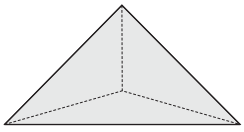
_____



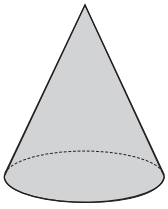
_____



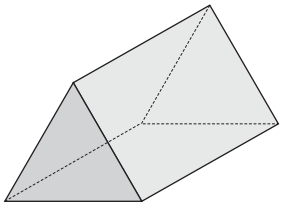
_____



_____

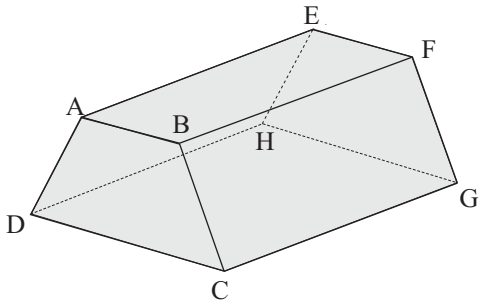


_____



_____

2. This object is called a trapezoidal prism.



(a) List the ***edges*** that are parallel to edge AB.

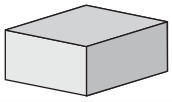
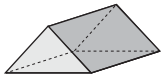
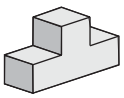
(b) List the ***face*** that is parallel to face ABFE.

(c) Which ***line*** is parallel to line EH?

(d) Find ***one*** line that is perpendicular to line CD.

3. Complete the following table where:

V is the number of vertices
F is the number of faces
E is the number of edges

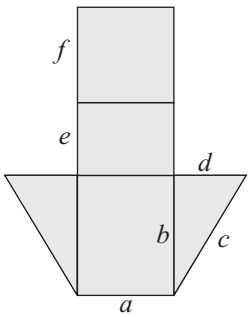
	V	F	E	V+F-E
	8	6	12	2
				
				
				

Master Maths 8 Worksheet 44
Nets

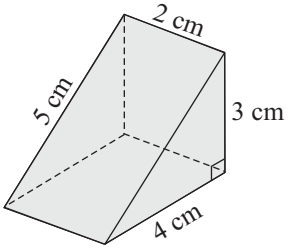
44

Name: _____

1. Julie wants to make the 3D object shown below by folding the piece of cardboard.



Piece of cardboard



3D Object

Complete this table showing the dimensions of the cardboard.

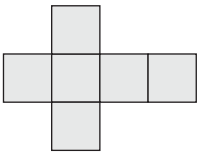
a	*b*	*c*	*d*	*e*	*f*
2 cm					

Fill in the gaps to give the name of this 3D object.

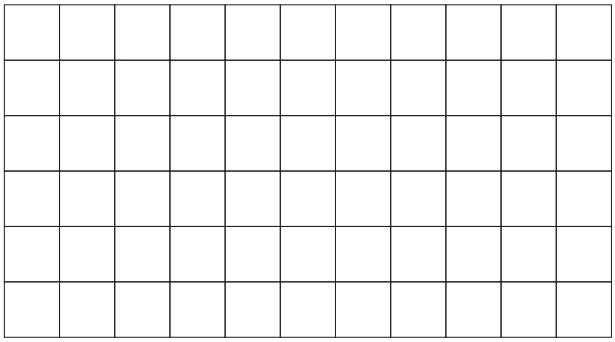
T	R						L						S	M

2. Hexominoes are shapes made with six squares.

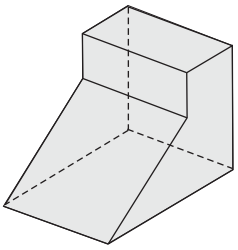
This hexomino can be folded into a cube.



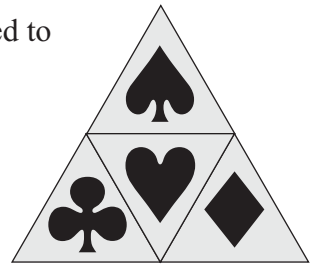
There are ten other hexominoes that may also be folded to form cubes.
Draw ***three*** of them on the grid below.

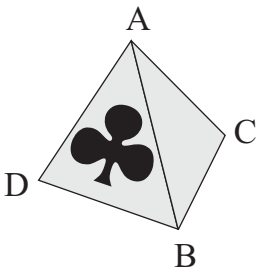


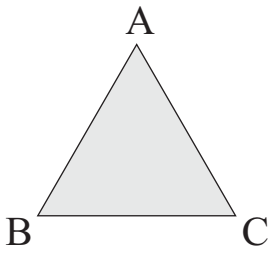
3. Draw a net that could be folded to form this object.

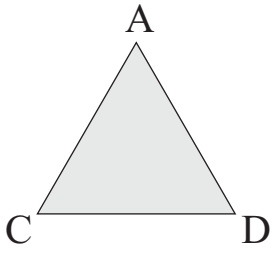


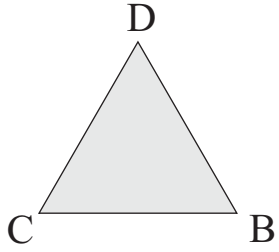
4. The net shown is folded to form a ***tetrahedron***. A view of this tetrahedron is given below with one face shown. Draw the shape that would be shown on the other three faces.











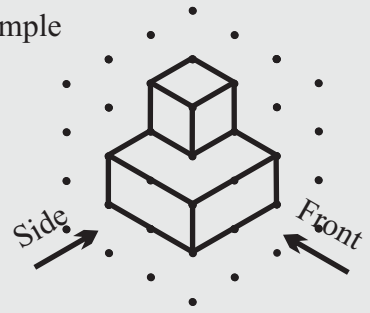
Master Maths 8 Worksheet 45
Views on 3 Dimensional Objects 1

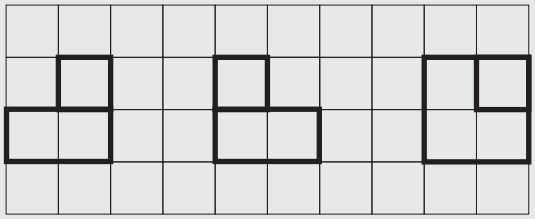
45

Name: _____

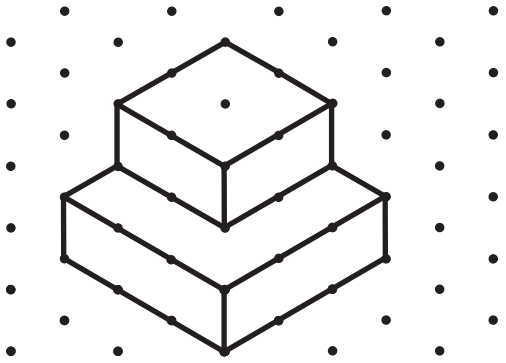
Draw the front, side and top views of the following objects.

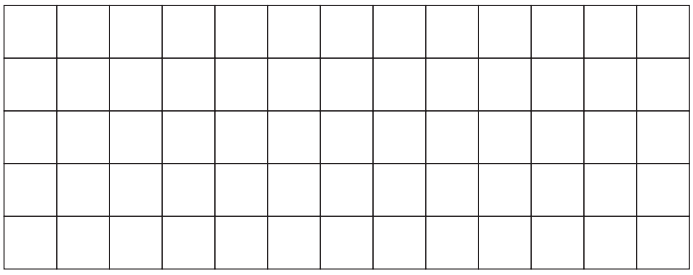
Example



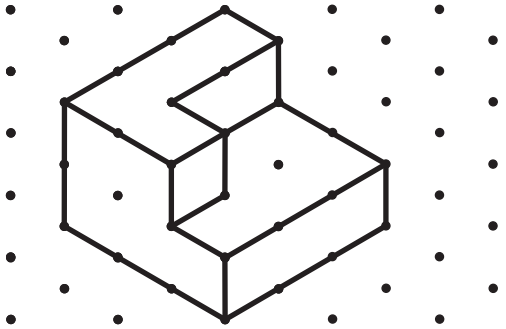


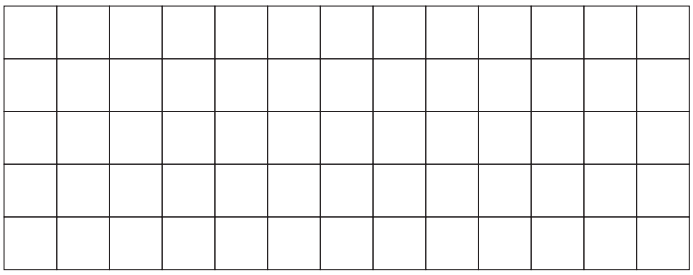
Front View | Side View | Top View



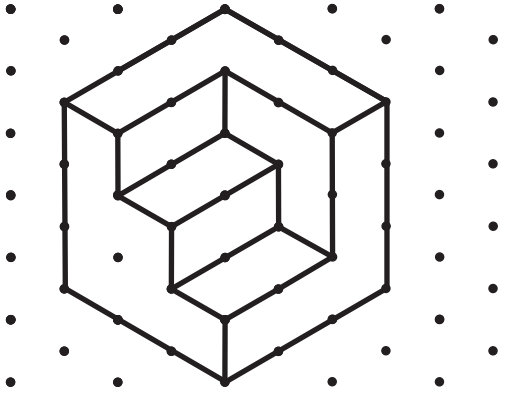


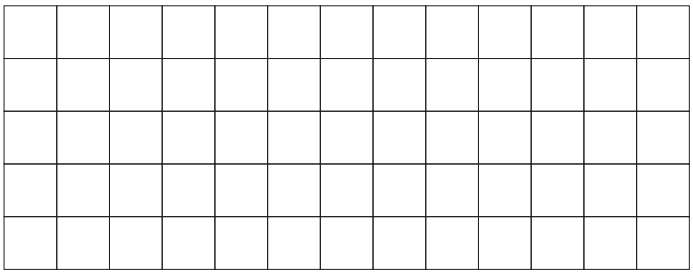
Front View | Side View | Top View





Front View | Side View | Top View





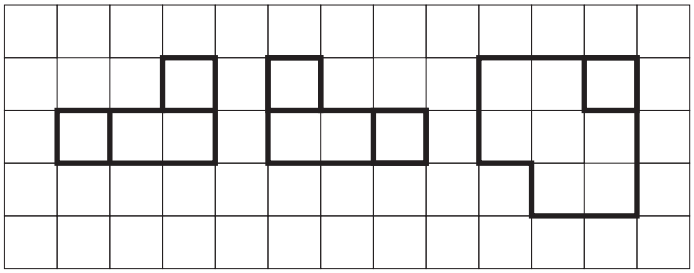
Front View | Side View | Top View

Master Maths 8 Worksheet 46
Views on 3 Dimensional Objects 2

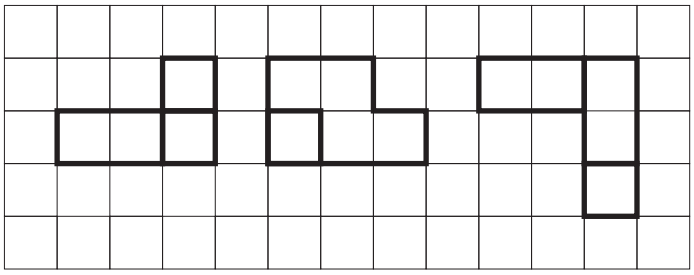
46

Name: _____

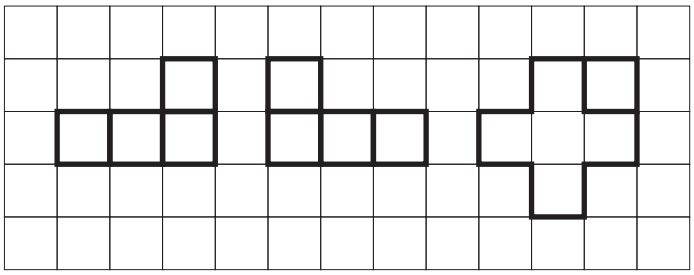
The front, side and top views of several objects are shown below. Draw these objects on the isometric dot grid.



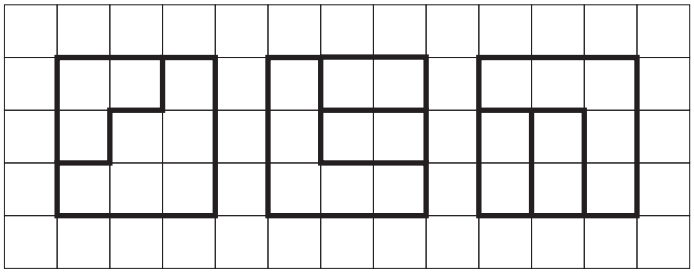
Front View | Side View | Top View



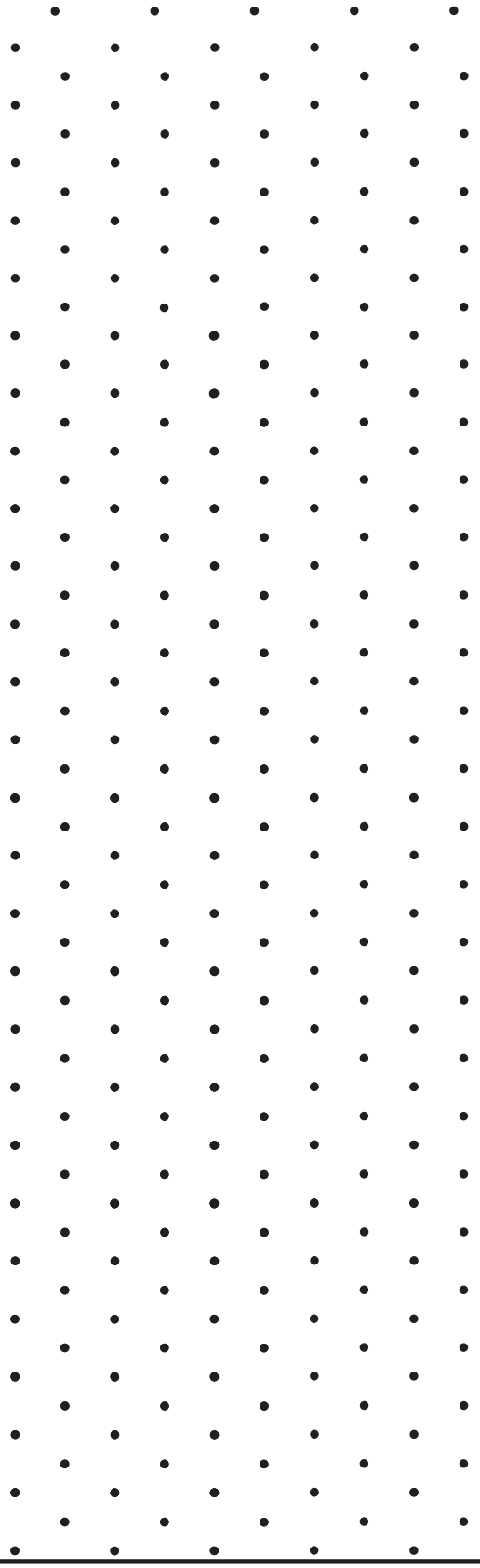
Front View | Side View | Top View



Front View | Side View | Top View



Front View | Side View | Top View

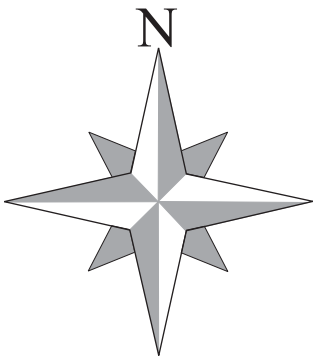


Master Maths 8 Worksheet 47
The Compass

47

Name: _____

1. Fill in ***all*** the directions on the points of the compass shown.



2. I am facing due east. I turn 90° to my right, then about face, then turn 45° to my left and I about face again.
What direction am I now facing?

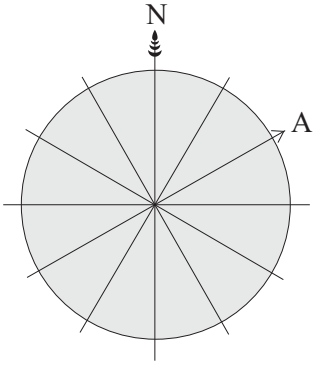
3. Noela and Graeme go bushwalking.
They walk 5 km east from their starting point, then walk 2 km north.
After a good lunch they then walk 3 km west, then 4 km south and finally 2 km west.
(a) How far did they walk altogether?

(b) How far from their starting point did they finish?

(c) What direction is their finishing point from their starting point?

4. Show the directions given in the table on the compass below.
Point A is completed for you.

Point	Compass direction
A	N 60° E
B	N 30° W
C	S 30° W
D	S 60° E
E	S
F	W



5. Use a protractor to find the approximate compass directions of the following objects (to the nearest 10°) from the person positioned at O.

Cow	
Tree	
Car	

Master Maths 8 Worksheet 48
True Bearings

48

Name: _____

1. Compass directions may be given as ***true bearings*** - the angle measured from North in a clockwise direction.

Complete this table. The first two examples are completed for you.

Compass Direction	True Bearing
E	90°
S 20° W	200°
W	
S 20° E	
NW	
NE	
	50°
	135°
	180°
	350°

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

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

Compass Points		Angle Between
E	SW	
N 20° E	N 70° E	
N 30° W	S	
N	S 20° E	
S 10° E	N 60° W	

3. Use a protractor to find the direction (to the nearest 10°) a plane would need to travel along the following routes.
Give your answers ***both*** as a compass direction and a true bearing.

Route	Compass Direction	True Bearing
Melbourne to Sydney		
Brisbane to Perth		
Hobart to Darwin		

4. Unscramble to find words from this worksheet:

SEAT _____

STEW _____

SHOUT _____

THORN _____

MOSSCAP _____

Master Maths 8 Worksheet 49
Scales on a Map

49

Name: _____

1. Complete the following conversions.

(a) 200 cm = _____ m

(b) 35 000 mm = _____ m

(c) 9500 cm = _____ m

(d) 7000 mm = _____ m

(e) 80 000 cm = _____ m

2. The scale on a map is 1:1000. Find the actual distance (in ***m***) of the following lengths measured off the map.

(a) 3 cm (b) 12 mm (c) 8.5 cm

m	m	m

(d) 16 cm (e) 86 mm (f) 21.5 cm

m	m	m

3. The scale on a map is 1:5000. Find the actual distance (in ***m***) of the following lengths measured off the map.

(a) 3 cm (b) 12 mm (c) 8.5 cm

m	m	m

(d) 16 cm (e) 86 mm (f) 21.5 cm

m	m	m

(g) 28.5 cm (h) 135 mm (i) 35 cm

m	m	m

4. Complete the following conversions.

(a) 700 m = _____ cm

(b) 2 km = _____ cm

(c) 9500 m = _____ mm

(d) 2 km = _____ mm

5. Convert the following comparisons to scales.

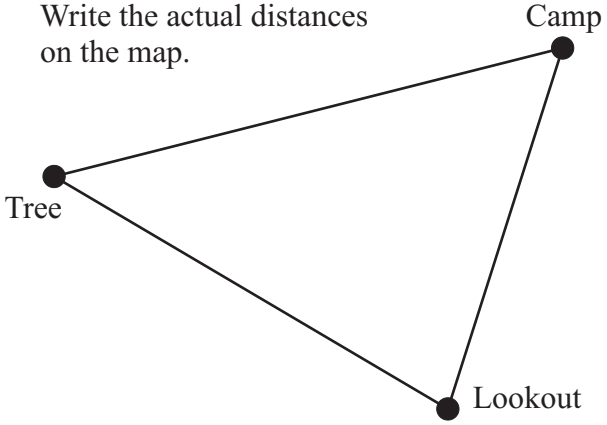
> ***Example*** 1 cm = 3 km
> 1 cm = 300 000 cm
> Scale = 1:30 000

(a) 1 cm = 500 m (b) 1 cm = 2 km

(c) 1 mm = 200 m (d) 1 mm = 1 km

(e) 1 cm = 40 km (f) 1 mm = 750 m

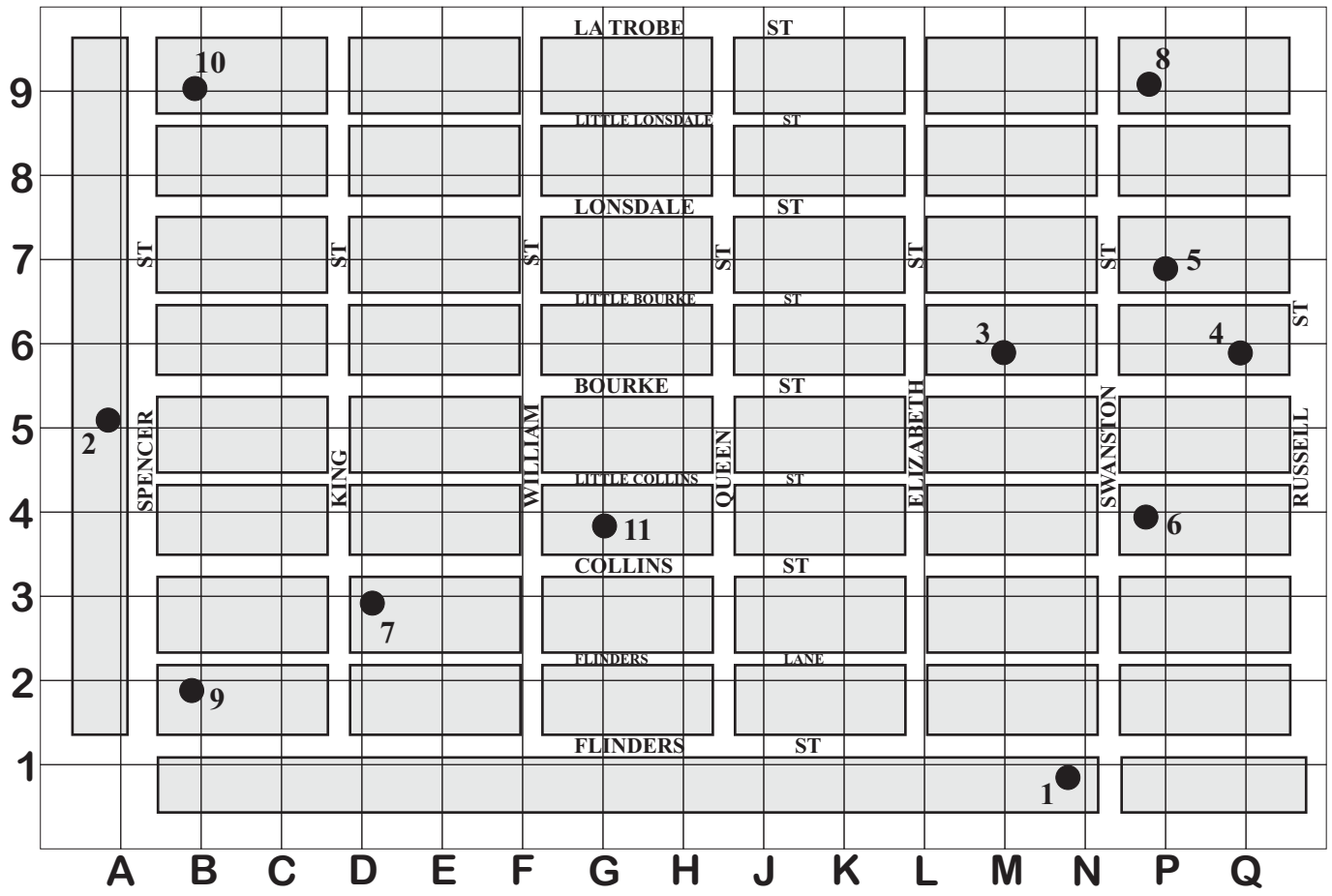
6. The map below has a scale of 1:20 000. Use a ruler to measure the length between the features on the map and use the scale to find the actual distances (in metres). Write the actual distances on the map.



Master Maths 8 Worksheet 50
Maps

50

Name: _____



The location of the following features are shown on this map of the central business district (CBD) of Melbourne.
State the grid coordinates closest to these features.
The first one is given as an example.

Feature	Grid Coord.
1. Flinders St Station	**N1**
2. Southern Cross Station	
3. Myer	
4. Cinema	
5. Chinatown	
6. Town Hall	
7. Rialto Tower	
8. State Library	
9. Motel 1	
10. Motel 2	
11. Bank	

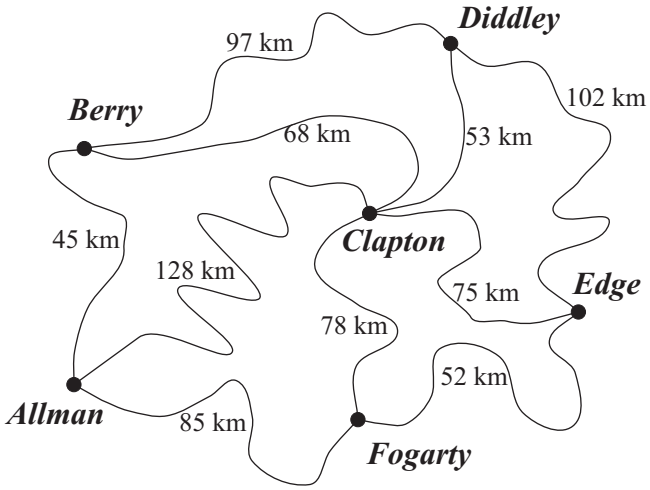
The scale of the map is 1:10 000.
Fred gets off a train at Flinders St Station and walks to the following features in this order: Myer, Cinema, the State Library, Bank, Rialto Tower and Southern Cross Station.
Using a ruler, measure the distance of the shortest path Fred could have taken and use the scale to calculate how far he walked.

Master Maths 8 Worksheet 51
Networks

51

Name: _____

1. Rob is a guitar salesman. The map below shows six towns where there are music shops he has to visit. The distances (in km) between the towns are included.
The map is not to scale.



Rob lives in Allman and wants to visit all the towns once before returning home.
List all the different routes that Rob could take and the distances between the towns.
Find the total distance for each route and highlight the shortest route.
(Some routes will be the reverse of others)
Use abbreviations for the towns (A for Allman, B for Berry, etc).

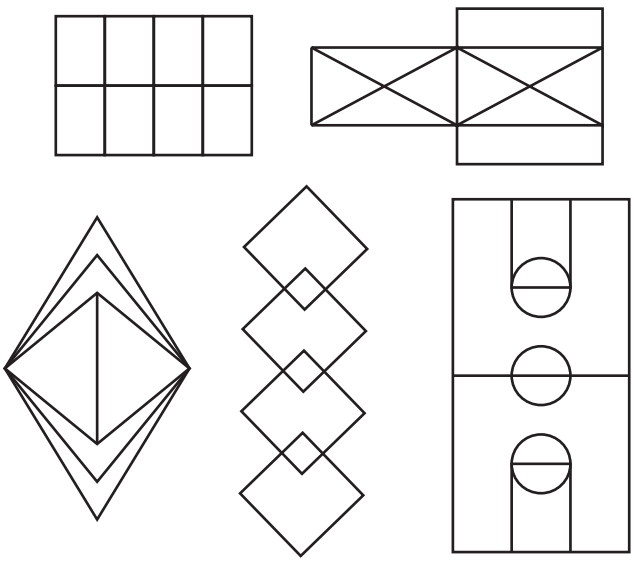
Example:

A $\overset{45\text{ km}}{\text{------}}$ B $\overset{68\text{ km}}{\text{------}}$ C $\overset{53\text{ km}}{\text{------}}$ D $\overset{102\text{ km}}{\text{------}}$ E $\overset{52\text{ km}}{\text{------}}$ F $\overset{85\text{ km}}{\text{------}}$ A

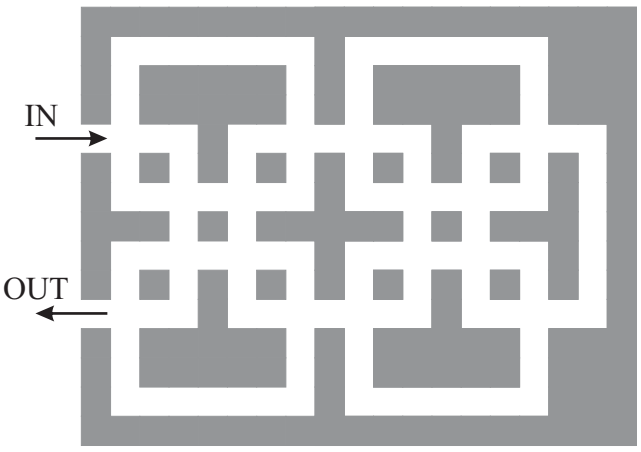
Total distance = 405 km

1. continued

2. Colour in the following shapes that can be drawn without lifting your pen and without drawing any line more than once.



3. Draw a path showing how someone could walk through this maze walking every track only once.

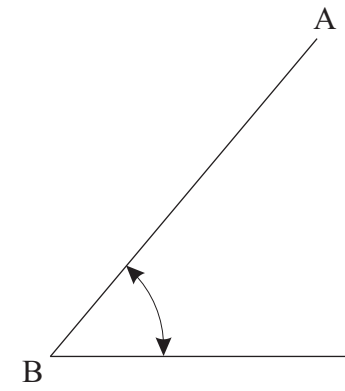


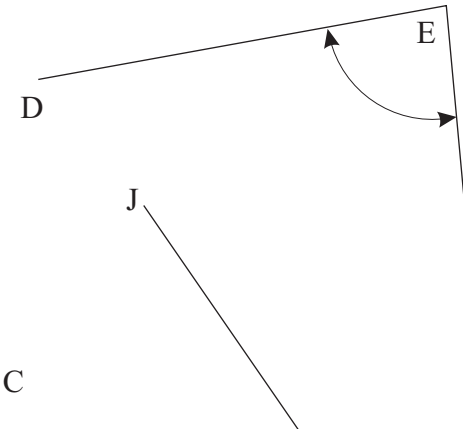
Master Maths 8 Worksheet 52
Measuring Angles

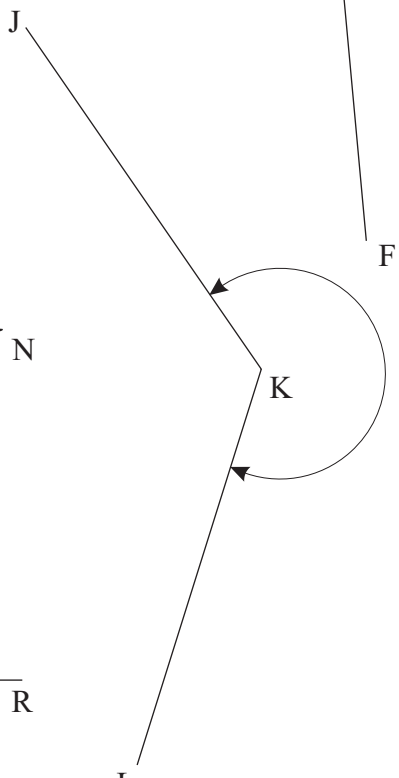
52

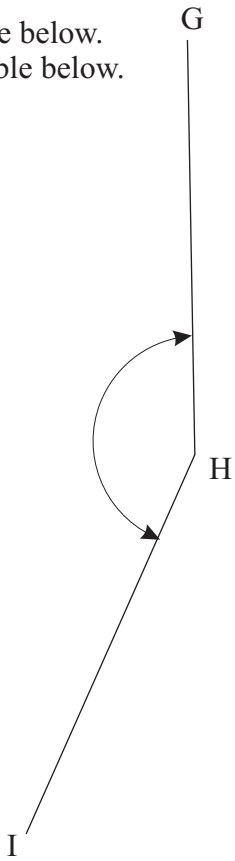
Name: _____

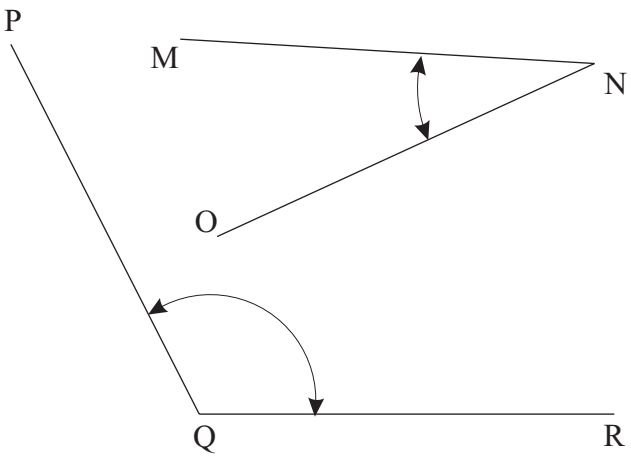
1. Estimate the size of the following angles and record your estimates in the table below.
2. Use a protractor to measure each angle and record the measurements in the table below.

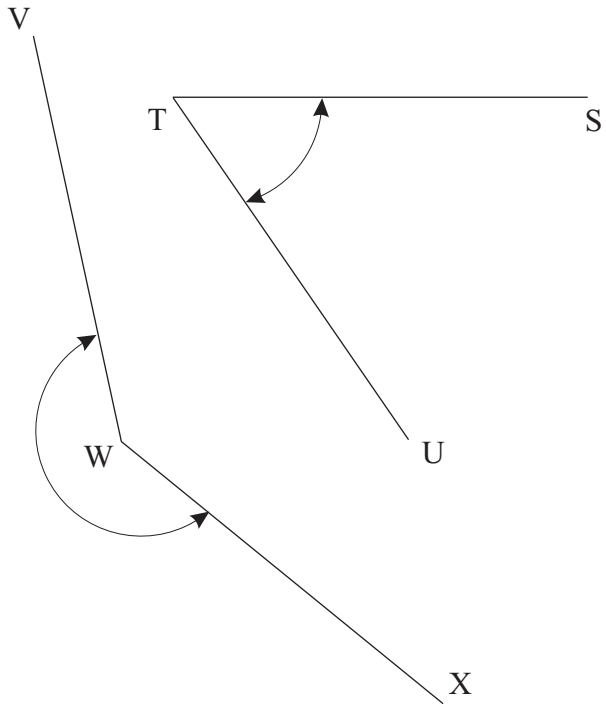












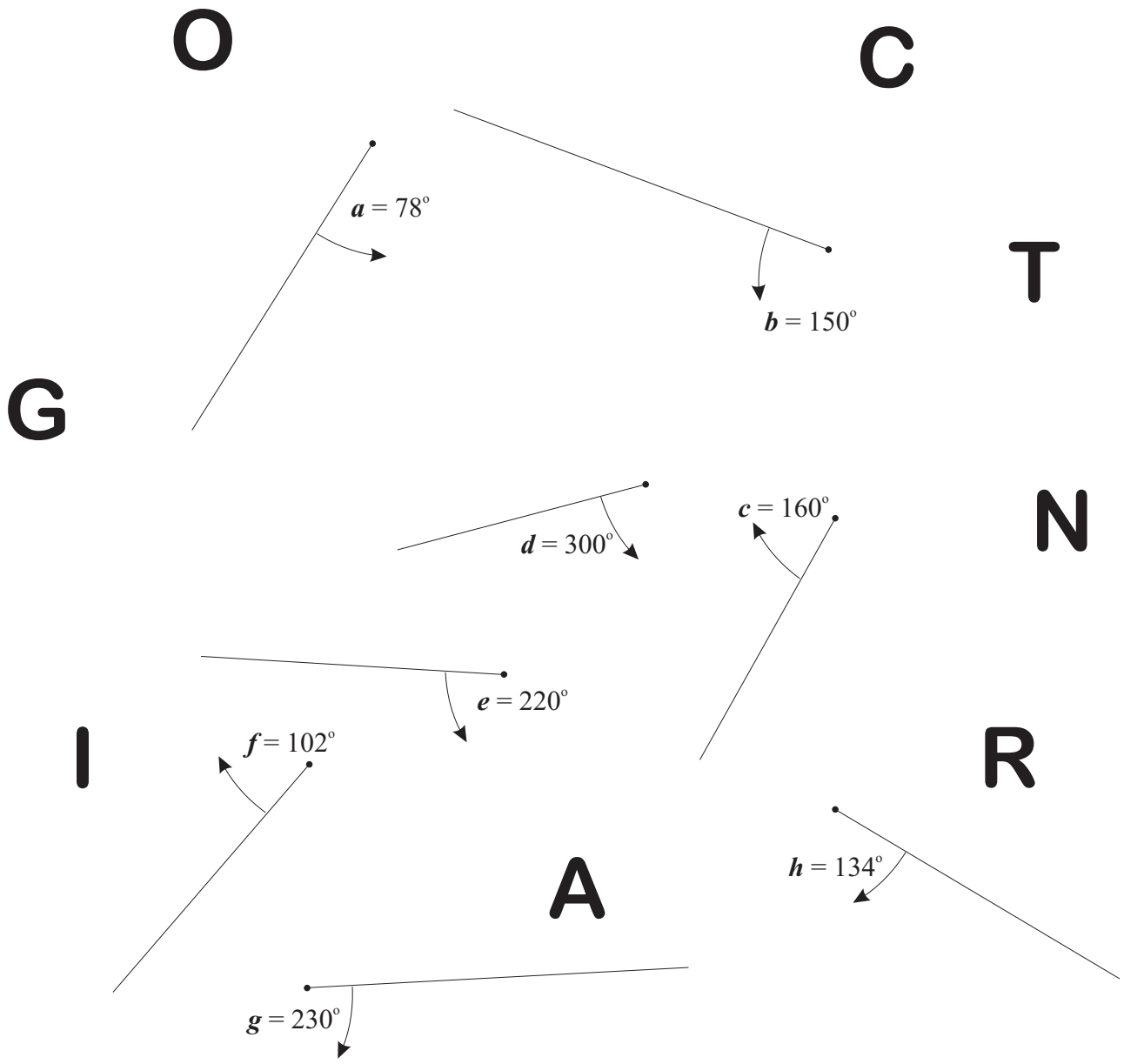
Angle	Estimate	Measurement
∠ABC		
∠ DEF		
∠ GHI		
∠ JKL		
∠MNO		
∠ PQR		
∠ STU		
∠VWX		

Master Maths 8 Worksheet 53
Drawing Angles

53

Name: _____

1. Use a protractor to draw the angles shown below using the given lines and directions indicated.
2. Extend each line you have drawn till it passes through one of the letters around the page.
3. Write these letters under their corresponding angles on the grid below.
4. The resulting word should spell the name given to a 30 sided polygon.



e	*a*	*g*	*h*	*c*	*d*	*b*	*e*	*h*	*f*	*d*	*b*

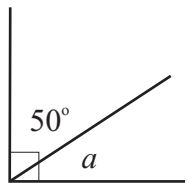
Master Maths 8 Worksheet 54
Calculating Angles

54

Name: _____

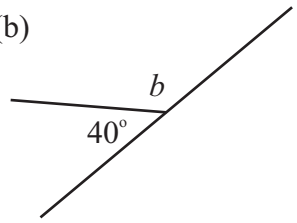
1. Calculate the unknown angles.

(a)



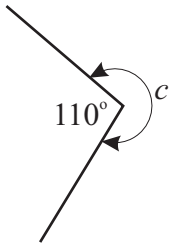
$a =$

(b)



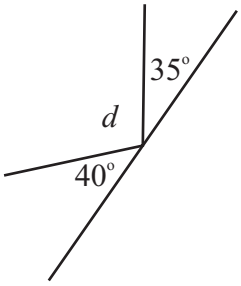
$b =$

(c)



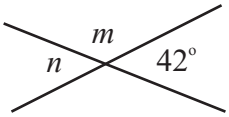
$c =$

(d)



$d =$

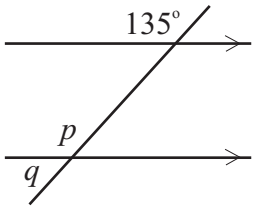
(e)



$m =$

$n =$

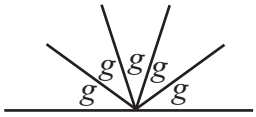
(f)



$p =$

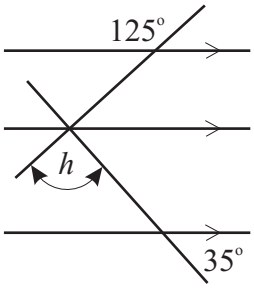
$q =$

(g)



$g =$

(h)



$h =$

2. Rearrange the letters NIGHT GLARE to form the name of a 90° angle.

___ ___ ___ ___ ___ ___ ___ ___ ___ ___

3. Complete the following sentences.

(a) ACUTE angles are between ____° and ____°.

(b) ___ ___ ___ ___ ___ ___ angles are between 180° and 360°.

(c) Angles between 90° and 180° are called

___ ___ ___ ___ ___ ___ angles.

4. (a) Calculate the acute angle between the hands of a clock at 1:00.

(b) Calculate the reflex angle formed by the hands of a clock at 4:00.

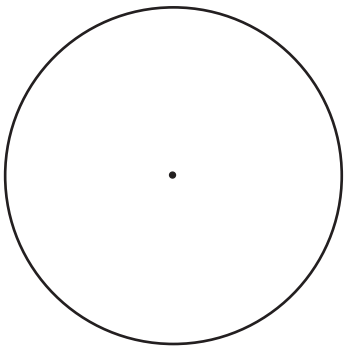
(c) Calculate the angle the minute hand of a clock moves through in one minute.

5. In a large city, one third of the people caught a train to work, one quarter caught a tram, one fifth drove a car, one eighth caught a bus and the rest rode a bike.

If this information was to be displayed on a pie graph, calculate the angle that would represent each form of transport and list these angles in this table.

Use a protractor to accurately draw the pie graph below.

Transport	Angle
Train	
Tram	
Car	
Bus	
Bike	



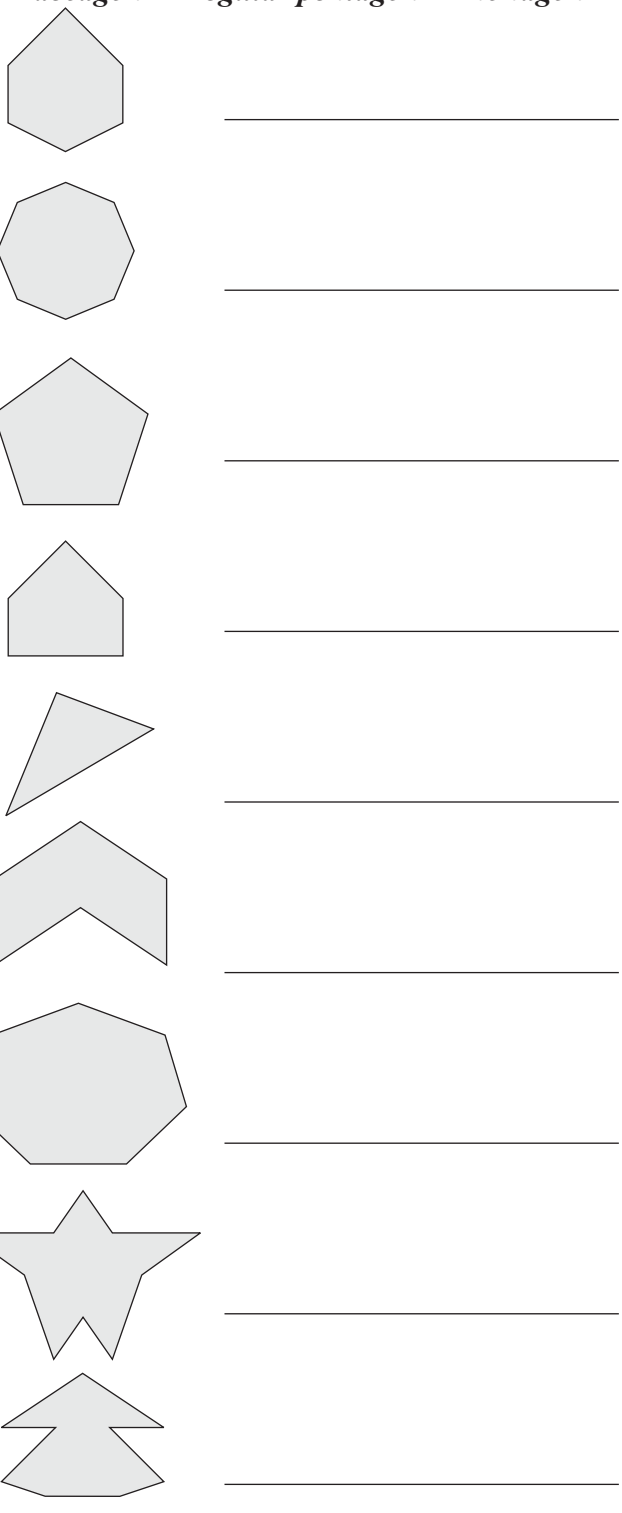
Master Maths 8 Worksheet 55
Polygons

55

Name: _____

1. From the following list find the correct name for each of the shapes below and write it next to the shape.

triangle ***irregular pentagon*** ***heptagon*** ***concave hexagon*** ***octagon*** ***convex hexagon*** ***decagon*** ***regular pentagon*** ***nonagon***



_____

_____

_____

_____

_____

_____

_____

_____

_____

2. What is the name given to:
(a) a regular triangle?

_____

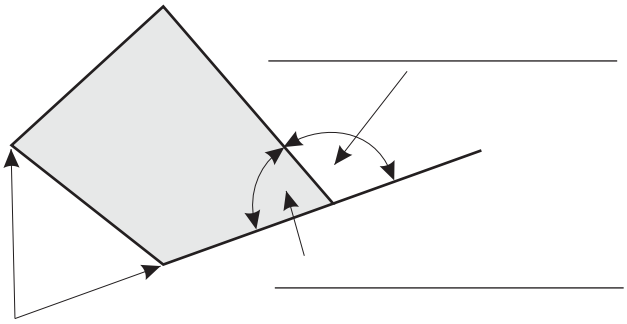
(b) a regular quadrilateral?

_____

3. How many pairs of parallel lines are in a regular decagon?

4. Unscramble the letters in following phrases to find the names of the features shown on the polygon below.

large exertion ***get on airliner*** ***rice vest***



_____

_____

_____

5. Complete this table showing:
(a) the sum of all the interior angles in the polygons shown.
(b) the size of an interior angle in the ***regular*** polygon.

Polygon	Sum of Interior Angles	Size of an Interior Angle
Triangle		
Quadrilateral		
Pentagon		
Hexagon		

Master Maths 8 Worksheet 56
Triangles

56

Name: _____

1. (a) Use a protractor to draw lines at the angles shown below.

(b) Mark point C, the intersection of these two lines.

(c) Using your knowledge of the angles in a triangle, what should be the size of angle ∠ACB?

(d) Use a protractor to measure ∠ACB.

2. Write the names of the following triangles.

(a) all sides are the same length

_____

(b) all sides are different lengths

_____

(c) two sides are the same length

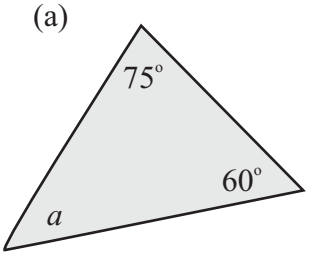
_____

(d) one angle is 90°

_____

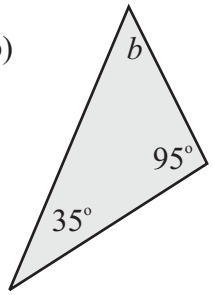
3. Calculate the unknown angles in the following triangles.

(a)



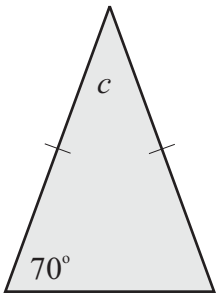
a =

(b)



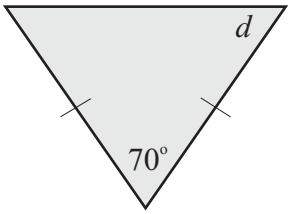
b =

(c)



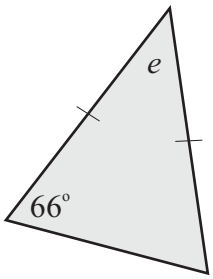
c =

(d)



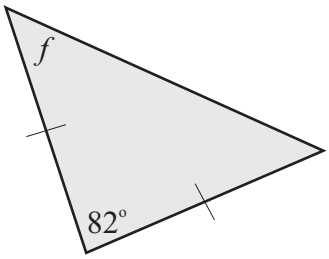
d =

(e)



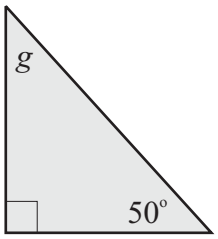
e =

(f)



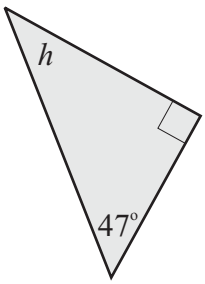
f =

(g)



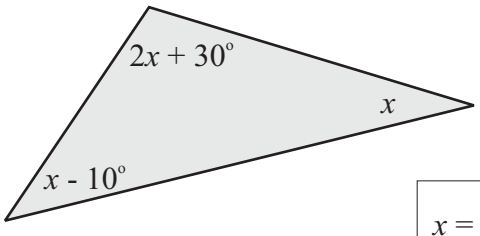
g =

(h)



h =

4. Find *x*.



x =

Master Maths 8 Worksheet 57
Quadrilaterals

57

Name: _____

1. Match the following descriptions with the shape names below.
Under each name sketch its shape.

A All sides are of equal length. Opposite angles are equal but not 90°.

B There are two pairs of parallel sides. Angles are not 90°.

C All sides are equal. All angles are 90°.

D There is one pair of parallel sides of different length.

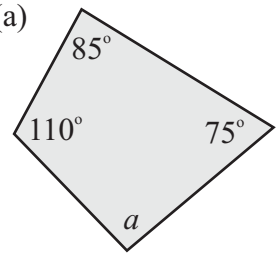
E All sides are of different length.

F There are two pairs of parallel sides of different length. All angles are right angles.

Rectangle ☐	Square ☐
Trapezium ☐	Parallelogram ☐
Irregular quadrilateral ☐	Rhombus ☐

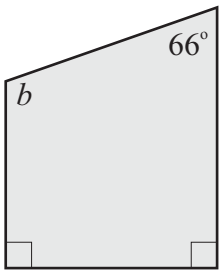
2. Calculate the unknown angles in the following quadrilaterals.

(a)



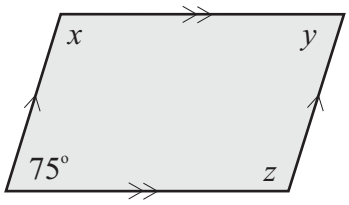
a = _____

(b)



b = _____

(c)

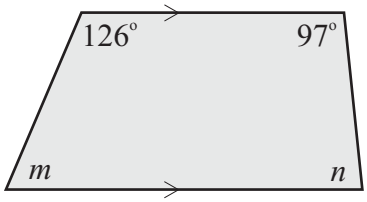


x = _____

y = _____

z = _____

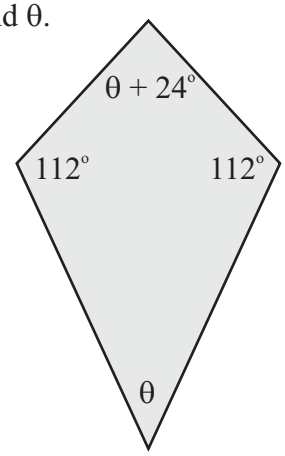
(d)



m = _____

n = _____

3. Find θ.



θ = _____

Master Maths 8 Worksheet 58
Constructions 1

58

Name: _____

1. Use a ruler, a pencil and a compass to construct triangle ABC with side lengths AB = 3 cm, BC = 4 cm and AC = 5 cm.

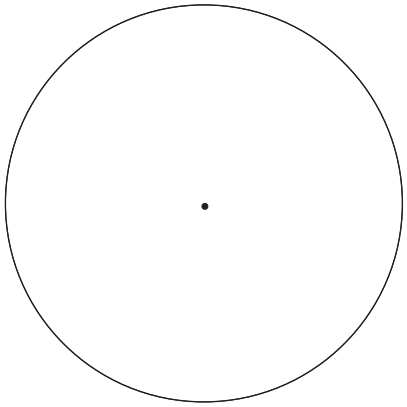
B C

Use a protractor to measure angle ABC.

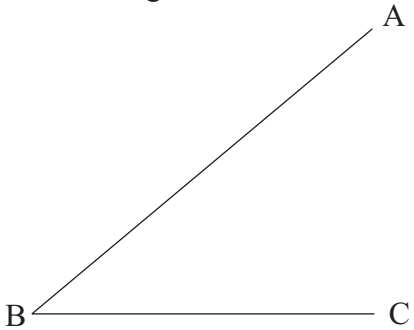
$\angle$ ABC = °

What type of triangle is ABC?

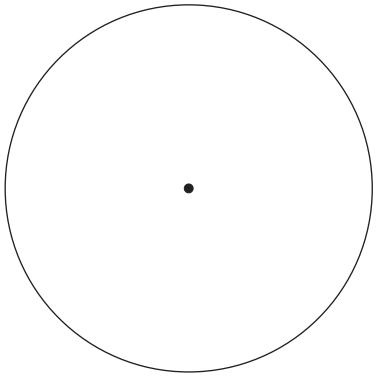
2. Use the circle below to construct an equilateral triangle.



3. Use a compass, a ruler and a pencil to bisect angle ABC.



4. Construct a regular octagon in the circle drawn below.
Use a compass, a ruler and pencil.



5. Construct a line that bisects EF and passes through point P.
Use a compass, a ruler and pencil.

E F

P

6. Unscramble to find words from this worksheet :

GLEAN	
INTEGRAL	
SO SCAMP	
CARROT PORT	
GOON ACT	

Master Maths 8 Worksheet 59
Constructions 2

59

Name: _____

1. Construct a line perpendicular to line AB at point C. Use a ruler, a compass and a pencil.

A C B

2. Construct an isosceles triangle using a compass, a ruler and a pencil.

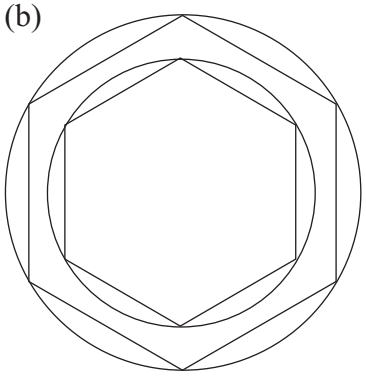
3. Use a compass, a ruler and a pencil to help you construct an angle of 45° on line AB at A.

A B

4. Construct these two designs using a compass, a ruler and a pencil.

(a)

(b)



Master Maths 8 Worksheet 60
Probability

60

Name: _____

0		0.5		1		
Impossible (cannot happen)	Very unlikely	Unlikely	Could go either way equally	Likely	Very Likely	Certain (will happen)

1. Using the decimal scale shown above, rate the probability of the following events occurring.

(a) It will be cloudy tomorrow. ☐

(b) The temperature will be 40°C tomorrow. ☐

(c) Tomorrow will be Sunday. ☐

(d) A soccer team will score more than 3 goals in a game. ☐

(e) An AFL football team will score more than 50 points. ☐

2. List one event that would have the following probabilities of occurring:

(a) 0 _____

_____

(b) 0.2 - 0.4 _____

_____

(c) 0.5 _____

_____

(b) 0.6 - 0.9 _____

_____

(c) 1 _____

_____

3. There are 50 tickets in a raffle and Marley buys 20 tickets.
What is the probability of Marley winning the raffle:

(a) as a fraction ☐ (b) as a decimal ☐

4. Find the following probabilities and write as ***fractions in their simplest form***.

(a) A box of chocolates contains 8 with hard centres and 10 with soft centres.

(i) What is the probability of randomly choosing one with a hard centre? ☐

(ii) What is the probability of randomly choosing one with a soft centre? ☐

(iii) One hard centre and one soft centre have been taken. What is the probability of the next chocolate being a hard centre? ☐

(b) In a lucky dip there are 5 CDs, 10 radios and 35 soft toys.

(i) What is the probability of each of these prizes being randomly chosen?

CD ☐ Radio ☐ Soft Toy ☐

(ii) The first 15 people won 5 CDs, 5 radios and 5 soft toys. What is the probability of each prize being chosen in the next pick?

CD ☐ Radio ☐ Soft Toy ☐

(c) Suki often catches trams in the city. She decided to record the time she had to wait for a tram for 40 tram rides. These times (in minutes) are listed below.

3	4	6	8	2	11	9	8	4	7
3	5	3	8	6	4	9	12	5	6
8	5	9	7	12	6	13	6	9	15
6	14	9	4	6	5	8	4	3	10

Based on these figures, what is the probability that someone has to wait more than 5 minutes for a tram? ☐

Master Maths 8 Worksheet 61
Probability - Listing Outcomes

61

Name: _____

1. (a) List all the different ways that the letters W, N and O can be arranged.

W N O

(b) If these three letters are arranged randomly, what is the probability that they spell an actual word?

2. Max is a spy. He has discovered a bomb that needs to be disarmed. To disarm the bomb he needs to cut three wires - red, blue and yellow. The problem is he needs to cut them in the correct order. If he cuts them in an incorrect order it will explode.

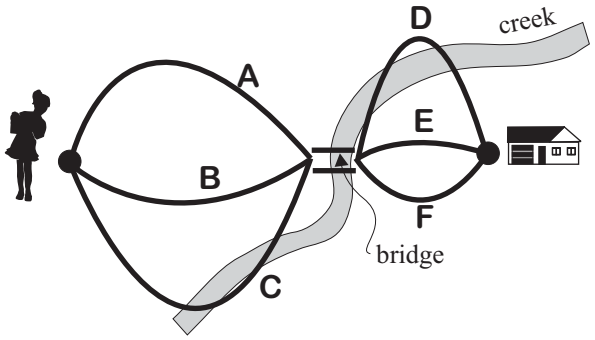
(a) List all the different ways that the wires can be cut.

First Cut	Second Cut	Third Cut

(b) What is the probability of randomly choosing the ***correct*** order to cut the wires.

(c) What is the probability of randomly choosing the ***incorrect*** order to cut the wires.

3. Jane wants to go to a friend's house. There are 3 tracks (**A**, **B**, **C**) to take through the forest to the bridge and a further 3 tracks (**D**, **E**, **F**) after the bridge to her friend's house.



She doesn't realise that two of the tracks (**C** and **D**) cross the creek and she will get wet feet.

(a) List all possible combinations of tracks Jane can take to her friend's house. One is completed for you.

Before bridge	After bridge
A	**D**

(b) In how many combinations will Jane get her feet wet?

(c) What is the probability of Jane getting wet feet?

Master Maths 8 Worksheet 62
Tally Sheets

62

Name: _____

1. Complete the following tally sheets.

(a)

Height (cm)	Tally	Frequency
0 -	𝍸 𝍸 ||	
10 -	𝍸 𝍸 𝍸 |||	
20 -	𝍸 𝍸 𝍸	
30 -	𝍸 ||||	
40 -	𝍸 𝍸 𝍸 𝍸 ||	
	Total	

(b)

Colour	Tally	Frequency
Red	𝍸 𝍸 ||||	
Black		12
Purple	𝍸 𝍸 |	
Yellow		16
Magenta	𝍸 𝍸 𝍸 ||||	
	Total	

(c)

Time (min)	Tally	Frequency
0 -		21
50 -	𝍸 𝍸 𝍸 |	
100 -		
150 -	𝍸 𝍸 𝍸 |||	
200 -	𝍸 𝍸 𝍸 𝍸 ||	
	Total	100

2. Construct tally sheets for the following sets of data.

(a) The lengths (in cm) of a number of fish caught in a river are shown below.

26	63	54	38	16	33	40	56	62	51
38	41	20	48	35	52	50	38	29	37
28	34	51	16	37	45	35	25	37	49
36	42	34	27	17	34	60	33	48	53
41	48	36	29	24	30	43	32	39	40

Length (cm)	Tally	Frequency
10 -		
20 -		
30 -		
40 -		
50 -		
60 -		
	Total	

(b) The list below shows the favourite flavour of ice-cream for a number of people.

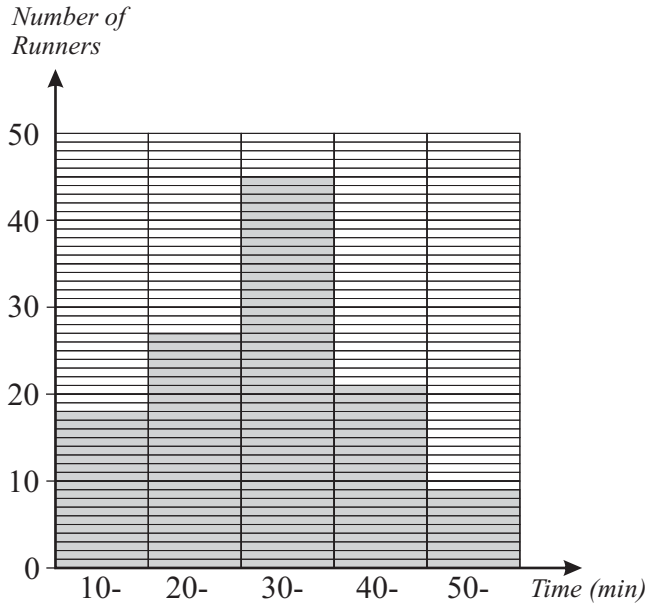
chocolate strawberry caramel peppermint
strawberry chocolate chocolate caramel
peppermint chocolate peppermint caramel
peppermint caramel strawberry caramel
strawberry chocolate strawberry strawberry
chocolate chocolate chocolate chocolate

Master Maths 8 Worksheet 63
Column Graphs 1

63

Name: _____

1. The following column graph shows the length of time (in minutes) for a number of runners to complete a cross-country course.



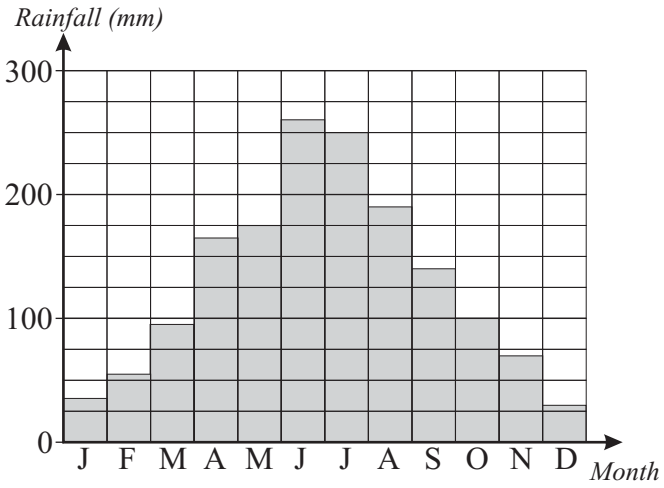
(a) How many runners completed the course in less than 20 minutes?

(b) How many runners completed the course in 40 minutes or longer?

(c) What was the total number of runners who completed the course?

(d) What ***fraction*** of the runners completed the course in less than 30 minutes?

2. The average monthly rainfall (in mm) for each month for a town is shown below.



(a) Which month as the highest average rainfall?

(b) Which month as the lowest average rainfall?

(c) What is the average ***winter*** rainfall?

(d) What is the average ***summer*** rainfall?

(e) What is the average ***total annual*** rainfall?

Master Maths 8 Worksheet 64
Column Graphs 2

64

Name: _____

1. The table below shows the amount (in kL) of milk produced by a dairy farm each month for a year.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Milk (kL)	8	10	11	13	17	20	18	21	23	19	16	14

(a) Draw a column graph for this data.

Amount of Milk (kL)

Month

(b) What was the total amount of milk produced in the year?

2. The ages of a number of people visiting the zoo are shown below.

(a) Using suitable group sizes, construct a tally sheet to display this information.

(b) Draw a column graph.

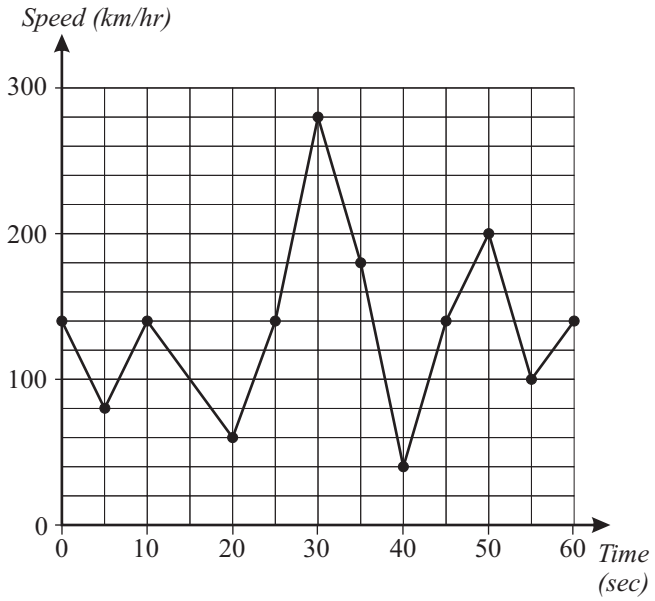
16	19	35	38	8	10	41	53	47	21	12
14	53	37	41	9	15	13	32	11	34	18
55	14	11	20	7	29	52	61	48	33	37
14	11	14	12	9	28	33	37	19	38	27
55	22	13	20	6	40	31	29	17	32	15

Master Maths 8 Worksheet 65
Line Graphs

65

Name: _____

1. The line graph below shows the speed (in km/hr) of a racing car every 5 seconds of a lap around a race track.



(a) What was the highest speed reached by the car ?

(b) How long after the start of the lap did this highest speed occur?

(c) What is the difference between the highest and lowest speeds shown on the graph?

(d) Between what two times was the increase of speed (acceleration) the greatest?

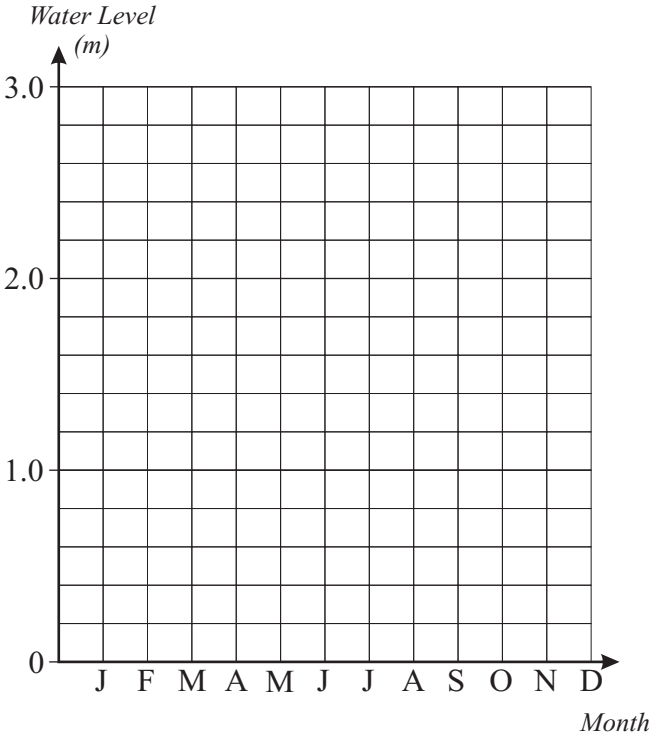
(e) Between what two times was the decrease of speed (deceleration) the greatest?

(f) Estimate the average speed of the racing car for the lap.

2. The water level (in metres) in a dam on a farm at the ***end*** of each month in a year is shown in this table.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Level (m)	1.8	1.6	1.3	0.6	0.4	0.4	0.7	1.7	2.6	2.8	2.8	2.6

Plot a graph of this information on the axes below.



(a) During which month did the water level ***rise*** by the greatest amount?

(b) What was the rise in the water level during this month?

(c) During which month did the water level ***fall*** by the greatest amount?

(d) What was the fall in the water level during this month?

(e) What was the change in the water level during winter?

Master Maths 8 Worksheet 66
Mean, Median and Mode

66

Name: _____

1. Find the mean, median and mode for the following sets of numbers.

(a) 8, 9, 9, 9, 9, 9, 10, 10, 11, 11, 11, 12, 12

Mean	Median	Mode

(b) 21, 23, 23, 24, 24, 24, 25, 25, 25, 25, 25

Mean	Median	Mode

(c) 12, 14, 15, 15, 17, 18, 21, 24

Mean	Median	Mode

(d) 8, 12, 18, 9, 12, 10, 23, 25, 27

Mean	Median	Mode

2. Find the mean and median for the following sets of numbers.

(a) 8, 14, 17, 19, 23, 26, 28, 30

Mean	Median

(b) 23, 16, 27, 19, 33, 41, 29, 45, 56, 28

Mean	Median

3. A netball team had the following scores in a season:

37, 26, 45, 31, 40, 42, 51, 39, 42, 31, 47, 39, 57

Find the mean and median score for the season.
Give answers correct to one decimal place.

Mean	Median

4. The amount of rainfall (in mm) during January for a particular town was recorded over ten years. This data is shown blow.

45 58 25 38 47 30 187 52 21 30

(a) Find the mean and median rainfall for the ten years.
Give answers correct to one decimal place.

Mean	Median

(b) Which is a better indicator of the January rainfall? Why?

_____

_____

_____

5. Trinity wanted to average 20 minutes of reading every day for a week. On the first six days she read for the following times:

15, 24, 17, 21, 11, 20

For how many minutes does she need to read on the last day to have averaged 20 minutes per day?

Master Maths 8 Worksheet 67
Stemplots

67

Name: _____

1. Construct an ordered stemplot from the non-ordered stemplot below.

Non-ordered stemplot

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

Ordered stemplot

Stem	Leaf

2. Construct a non-ordered and ordered stemplot for the following data.

14, 17, 23, 11, 19, 34, 55, 30, 27, 48, 37, 33, 19, 26, 29, 48, 52, 41, 20, 38, 45, 36, 42, 50

Non-ordered stemplot

Stem	Leaf

Ordered stemplot

Stem	Leaf

3. For the data in question 2 find:

(a) the lowest value

(b) the highest value

(c) the median

4. Construct a non-ordered and ordered stemplot for the following data.

27, 32, 44, 57, 52, 30, 25, 60, 41, 23, 48, 44, 59, 56, 43, 45, 36, 37, 61, 31, 62, 31, 35, 52

Non-ordered stemplot

Stem	Leaf

Ordered stemplot

Stem	Leaf

For this data find:

(a) the lowest value

(b) the highest value

(c) the median

(d) the range

(e) the number of items of data

(f) the mean (1 dec. place)

Master Maths 8 Worksheet 68
Boxplots

68

Name: _____

1. Use the following data to find the information listed below.

14, 17, 19, 23, 25, 29, 33, 37, 44, 46, 48

(a) the lowest value

(b) the highest value

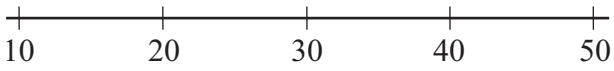
(c) the median

(d) Q_1

(e) Q_3

(f) the interquartile range

(g) draw the boxplot for this data



2. Use the following data to find the information listed below.

46, 37, 39, 23, 25, 29, 33, 37, 54, 46, 48, 53

(a) the lowest value

(b) the highest value

(c) the median

(d) Q_1

(e) Q_3

(f) the interquartile range

(g) draw the boxplot for this data

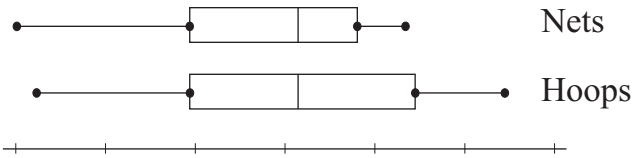
3. An ordered stemplot is shown below.

Ordered stemplot

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

Construct a boxplot from this data.

4. A boxplot showing the heights of players in two basketball teams (Nets and Hoops) is shown below.



Use the abbreviations of **N** (Nets), **H** (Hoops) or **S** (Same) to answer the following questions.

(a) Which team had the tallest player?

(b) Which team had the shortest player?

(c) Which team had the largest range of player heights?

(d) Which team had the largest median height?

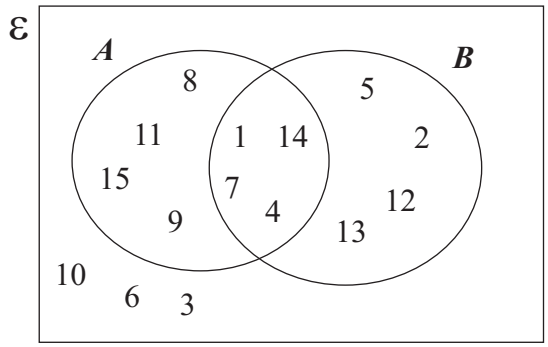
(d) Which team had the largest mean height?

Master Maths 8 Worksheet 69
Venn Diagrams

69

Name: _____

1. List the elements in the universal set and the other sets in the following Venn diagram.



ε =

A =

B =

2. (a) Construct a Venn diagram representing the following sets.

ε = {1, 2, 3, 4, ...20}
X = {1, 2, 3, 4, 9, 10, 13, 14, 16, 17}
Y = {3, 5, 7, 10, 11, 13, 15, 16, 19}

(b) Use this Venn diagram to find the following set.

$X \cap Y$

3. Use the information below to construct a Venn diagram showing the number of elements in all of the sections.

$n(\varepsilon) = 20$, $n(K) = 14$, $n(L) = 13$, $n(K \cap L) = 10$

4. There were 100 students in year 8 at a school.
40 wanted to study technology.
35 wanted to study graphics.
26 wanted to study graphics but not technology.
Construct a Venn diagram representing this information completing all sections of the diagram.

How many students did not want to study either of these two subjects?