Name: _____

1. Write the following in factor form.

(a) 5^6

(b) 11^5

2. Write the following in index form.

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

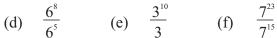(b) $9 \times 9 \times 9 \times 9 \times 9 \times 9$

3. Simplify the following.

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

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

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

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

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