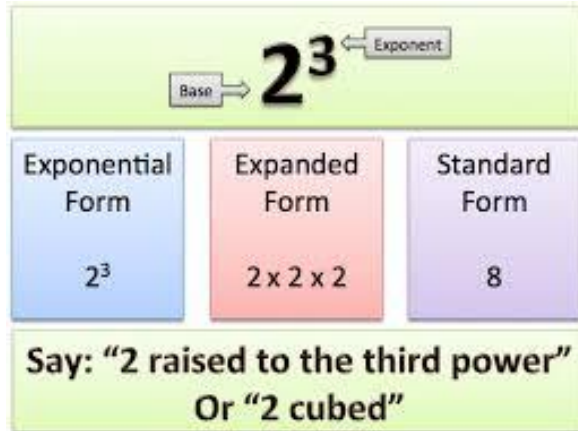


WORKING WITH EXPONENTS



- 1) The following problems are written in expanded form. Rewrite each one using exponents:

a) $8 \times 8 \times 8 \times 8$	
b) $10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$	
c) $a \times a \times a$	
d) meter \times meter	
e) centimeter \times centimeter \times centimeter	
f) $a \times a \times a \times 2 \times 2 \times 2 \times 2$	

2. Use exponents to rewrite the following expressions in standard form.

a) $2^3 \times 2^4$	Ex. $8 \times 16 = 128$
b) 6×6^3	
c) $5 \times 5^2 \times 5^3$	
d) $4 \times 4^3 \times 4^2$	

3. Use exponents to write the following using one power only. In other words, one base number raised to a power will equal each of these expressions. Try all five.

a) 4×8	Ex. $(2 \times 2) \times (2 \times 2 \times 2) =$
b) 25×5	
c) $16 \times 4 \times 4^3$	
d) $2 \times 2 \times 8 \times 2^3$	
e) $b \times b \times b^3$	

4) Try the three word problems involving exponents below.

a)

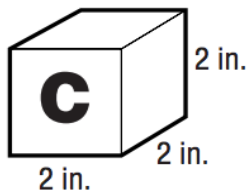
WEIGHT A 100-pound person on Earth would weigh about $4 \cdot 4 \cdot 4 \cdot 4$ pounds on Jupiter. Write $4 \cdot 4 \cdot 4 \cdot 4$ using an exponent. Then find the value of the power. How much would a 100-pound person weigh on Jupiter?

b)

SPACE The Sun is about $10 \cdot 10$ million miles away from Earth. Write $10 \cdot 10$ using an exponent. Then find the value of the power. How many miles away is the Sun?

c).

GEOMETRY The volume of the block shown can be found by multiplying the width, length, and height. Write the volume using an exponent. Find the volume.



NAME _____

PERIOD _____

5) Expand out the following fractional and decimal exponents.

$$\left(\frac{2}{3}\right)^2$$

$$\left(\frac{1}{5}\right)^3$$

$$0.8^2$$

$$\left(\frac{1}{2}\right)^3$$

$$5^3$$

$$0.2^6$$

6) Put >, <, or = in each box. You may use a calculator.

a) 4^6 6^4

b) 9^3 3^9

c) 12^4 4^{12}