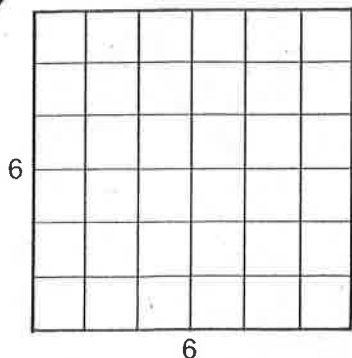


Exponents

NAME: _____



36 is the product of equal factors 6 and 6.
 6×6 , or 36, can be expressed as 6^2 .

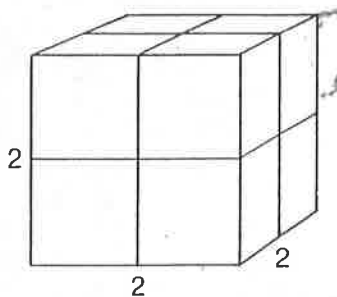
6^2 is a **power**. 6^2 is read as six **squared**,
 six to the second power, or
 the second power of six.

6^2 means 6×6 . For this power, the **base** is 6.
 The **exponent** is 2. The exponent
 tells how many equal factors there are.

8 is the product of equal factors 2, 2, and 2.
 $2 \times 2 \times 2$, or 8, can be expressed as 2^3 .

2^3 is a power. 2^3 is read as two **cubed**,
 two to the third power, or
 the third power of two.

2^3 means $2 \times 2 \times 2$. The base is 2.
 The exponent is 3.
 2 is used as a factor 3 times.



WORKING TOGETHER

1. Which number is the exponent?
 Which number is the base?

a. 3^4 b. 10^3 c. 6^2
 d. 2^5 e. 9^4 f. 7^2

2. Express the number as a power.

a. $2 \times 2 \times 2$ b. 6×6
 c. $3 \times 3 \times 3 \times 3$ d. $10 \times 10 \times 10$
 e. $7 \times 7 \times 7 \times 7 \times 7 \times 7$

3. Write the number in standard form.

a. 5^3 b. 3^5 c. 4^6

4. Copy and complete.

a. $27 = \square \times \square \times \square = \square^\square$
 b. $4^\square = 4 \times 4 \times 4 \times 4 = \square$
 c. $10\,000 = \square \times \square \times \square \times \square = \square^\square$
 d. $8^\square = 8 \times 8 \times 8 = \square$

5. Express as a power.

a. 36 b. 243 c. 625 d. 100

6. Copy and complete.

	Power	Base	Exponent	Meaning	Standard Form
a.	3^2				
b.	2^4				
c.		6	3		
d.				4×4	
e.	10^5				
f.		3			81
g.				$7 \times 7 \times 7$	
h.		2			64

7. Express in standard form.

- a. five squared b. nine cubed
 c. seventh power of 10
 d. seven to the third power

8. Evaluate.

- a) 12^3 b) 32^{3-1} c) 294^2

Multiplying & Dividing

➔ When you multiply or divide numbers with exponents, if the base is the same number, you can just add or subtract the exponents.

Eg. (A) $2^2 \times 2^3 = 2^5$
 $(2 \times 2) \times (2 \times 2 \times 2) = 2^5$

(B) $\frac{2^3}{2^2} = \frac{2 \times 2 \times 2}{2 \times 2} = 2^1 = 2$

(C) $(2^2)^3 = 2^2 \times 2^2 \times 2^2$
 $2^{2+2+2} = 2^6$

$\frac{2^2}{2^2} = \frac{2 \times 2}{2 \times 2} = \frac{4}{4} = 1 \therefore n^0 = 1$

Solve the following (Leave as an Exponent)

1) $3^4 \times 3^3 \div 3^5$

4) $(9^2)^3 \div 9^4$

2) $4^2 \div 4^2$

5) $5^3 \times 5^6 \div 5^2 \times 5^3$

3) $2^5 \times 2^4 \div (2^3)^2$

6) $\frac{7^2 \times 7^4}{7^5}$