

NAME Key

**EXPONENTS:**

Write each product using an exponent.

1.  $5 \times 5 \times 5 \times 5 \times 5$

$5^5$

2.  $12 \times 12 \times 12$

$12^3$

3.  $9 \times 9 \times 9 \times 9$

$9^4$

4.  $7 \times 7$

$7^2$

Write each power as a product of the same factor. Then find the value. SHOW ALL STEPS!

5.  $9^4$

$9 \times 9 \times 9 \times 9 =$   
 $(6,561)$

6.  $2^5$

$2 \times 2 \times 2 \times 2 \times 2 =$   
 $(32)$

7.  $4^0$

$(1)$

8.  $6^1$

$(6)$

9.  $0.5^3$

$0.5 \times 0.5 \times 0.5$   
 $(0.125)$

**ORDER OF OPERATIONS:**

Find the value of each expression. SHOW ALL STEPS!

10.  $22 - 17 + 8$

$5 + 8$   
 $(13)$

11.  $6 \cdot (9 + 2) - 5$

$6 \cdot 11 - 5$   
 $66 - 5$   
 $(61)$

12.  $55 \div (5 + 6) + 7 \cdot (2 + 14)$

$55 \div 11 + 7 \cdot (2 + 14)$   
 $55 \div 11 + 7 \cdot 16$   
 $5 + 7 \cdot 16$   
 $5 + 112$   
 $(117)$

13.  $26 + 6^2 \div 4$

$26 + 36 \div 4$   
 $26 + 9$   
 $(35)$

14.  $12 \div 4 + (5^2 - 6)$

$12 \div 4 + 25 - 6$   
 $3 + 19$   
 $(22)$

15.  $(8 - 6)^4 + 10 \cdot 9$

$2^4 + 10 \cdot 9$   
 $16 + 10 \cdot 9$   
 $16 + 90$   
 $(106)$

**ALGEBRAIC EXPRESSIONS:**

Evaluate each expression for the given values of the variables. SHOW ALL STEPS!

16.  $24 \div a$  if  $a = 6$

$24 \div 6$   
 $(4)$

17.  $2b - 10$  if  $b = 13$

$26 - 10$   
 $(16)$

18.  $c^2 + c$  if  $c = 8$

$8^2 + 8$   
 $64 + 8$   
 $(72)$

19.  $5d^3$  if  $d = 4$

$5 \cdot 4^3$   
 $5 \cdot 64$   
 $(320)$

Evaluate each expression if  $w = 6$ ,  $x = 8$ , and  $y = 12$ . SHOW ALL STEPS!

20.  $2w + 4x$

$12 + 32$   
 $(44)$

21.  $3y^2 + 5w$

$3 \cdot 12^2 + 5 \cdot 6$   
 $3 \cdot 144 + 5 \cdot 6$   
 $432 + 30$   
 $(462)$

22.  $y \div 3 + wx$

$12 \div 3 + 48$   
 $4 + 48$   
 $(52)$

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Date: \_\_\_\_\_

### Study Guide for Pre-Algebra Unit

Write the base and exponent for the problem.

7<sup>3</sup>

1) Base: 7

2) Exponent: 3

Write each power as a product of the same factor.

3) 5<sup>2</sup> = 5 × 5

4) 11<sup>6</sup> = 11 × 11 × 11 × 11 × 11 × 11

Write each expression in exponential form.

5) four cubed 4<sup>3</sup>

6) 3 × 3 × 3 × 3 3<sup>4</sup>

7) eight to the sixth power 8<sup>6</sup>

Find each value.

8) 7<sup>2</sup> = 7 · 7 = 49

9) 5<sup>0</sup> = 1

Evaluate the problems.

10) 15 ÷ 5 · 2 = 6

11) 6 × (7 + 3) ÷ 2 + 3<sup>2</sup> = 39

12) (18 ÷ 6) + 7 + (15 - 10) · 2<sup>3</sup> = 50

Evaluate each expression if m = 5.

13) m - 3 = 5 - 3 = 2

14) 10m = 10 · 5 = 50

15) m<sup>2</sup> - 5 · 4 = 5

5<sup>2</sup> - 5 · 4  
25 - 20

Complete the chart below.

Expression	Coefficients	Variables	Constants
8h + 9 ÷ 3z	8 3	h z	9
42 · 6r + 2r - d	42 2	r r d	42
t <sup>2</sup> · t + 7t + 5	7	+ + +	5
12 + 2p ÷ 2	2	p	12 2
6k + 4	6	k	4