Algebra 1.1

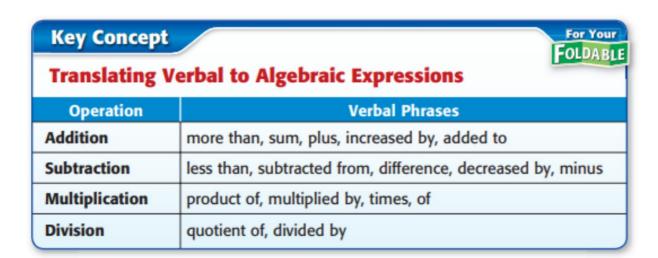
Write verbal expressions for algebraic expressions Write algebraic expressions for verbal expressions

algebraic expression variable term factor product power

exponent base

the sum of 5 times a number 3n-3=5n+3

 $3x + \frac{1}{2}y$



Check Your Progress

2A. the product of p and 6

2B. one third of the area a

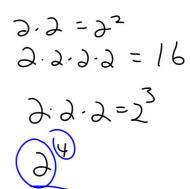
An expression like x^n is called a **power** and is read "x to the nth power." The variable x is called the **base**, and n is called the **exponent**. The exponent indicates the number of times the base is used as a factor.

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Symbols	Words	Meaning
31	3 to the first power	3
3 ²	3 to the second power or 3 squared	3 · 3
3 ³	3 to the third power or 3 cubed	3 · 3 · 3
3 ⁴	3 to the fourth power	3 · 3 · 3 · 3
$(2b^6)$	2 times b to the sixth power	2 · b · b · b · b · b · b
x ⁿ	x to the nth power	x · x · x · · x,
-		n factors

By definition, for any nonzero number x, $x^0 = 1$.

$$2+2+2+2+2=10$$

 $2.5=10$



Study Tip

Reading Math When no exponent is shown, it is understood to be 1. For example, $a = a^1$.

Example 2 Write Algebraic Expressions with Powers

Write each expression algebraically.

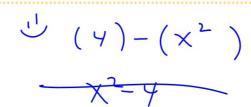
a. the product of 7 and m to the fifth power

 $7m^5$

b. the difference of 4 and x squared

 $4 - x^2$

$$7 \cdot m^{S}$$
 $\left(7m\right)^{S}$



To evaluate an expression means to find its value.

Example 3 Evaluate Powers

Evaluate each expression.

a.
$$2^6 = 2.2.2.2.2.2 = 64$$

Whiteboards

Write an algebraic expression for each verbal expression.

- 11. the sum of 35 and z
- 13. the product of 16 and *p* | 6 *p* | 15. 49 increased by twice a number
- 17. two-thirds the square of a number

$$\frac{2}{3}n^2$$

- 12. the sum of a number and 7
- 14. the product of 5 and a number
- 16. 18 and three times d
- 18. one-half the cube of n

Evaluate each expression.

21.
$$6^2 = 66 = 36$$
22. 8^2 64
23. 3^4 81
24. 6^3 216
25. 3^5 243
26. $15^3 = 3375$
27. 10^6
28. 100^3
3. 3. 3. 3. 3
15.15.15 = 1,000,000

Matching activ