Lesson 6 ~ Variables and Expressions

Name_____   Period_____   Date_____

Write an algebraic expression for each phrase.

1. d decreased by three

2. seven divided by h

3. the sum of t and six

4. three times k

5. the product of w and twelve

6. the quotient of y and five

7. eight more than p

8. six subtracted from n

9. twenty less than f

10. two times a number z plus nine

Write a word phrase for each algebraic expression.

11. $25 - y$

12. $t + 11$

13. $z - 6$

14. $8 \cdot p$

15. Write two different word phrases for $n + 8$.

a)

b)

16. Write two different word phrases for $16 - x$.

a)

b)

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Lesson 7 ~ Evaluating Expressions

Name_____   Period_____   Date_____

Evaluate each expression.

1. $t - 4$ when $t = 7$

2. $8d$ when $d = 3$

3. $5x - 3$ when $x = 4$

4. $\frac{1}{4} + z$ when $z = \frac{1}{2}$

5. $1.8k + 0.5$ when $k = 0.8$

6. $\frac{y}{3} + 10$ when $y = 21$

Evaluate each expression when $a = 4$, $b = 7$ **and** $c = 12$.

7. $3a + b$

8. $4(c + a)$

9. $c - 2a + 4b$

10. $4bc$

11. $\frac{c}{a} + b$

12. $\frac{4 + c}{a}$

Complete each table by evaluating the given expression for the values listed.

13.

x	$4x + 3$
0	
$\frac{1}{4}$	
5	
6	
10	

14.

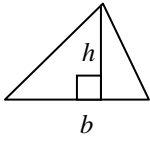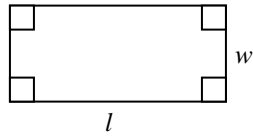| x	$\dfrac{6x + 4}{2}$
2	
3	
7	
30	

Lesson 8 ~ Evaluating Geometric Formulas

Name_____ Period_____ Date_____

Use the following formulas to evaluate.

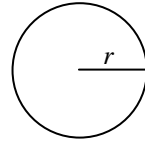Area = $\frac{1}{2}bh$

Area = $l \cdot w$

Perimeter = $2l + 2w$

Area = $\pi \cdot r^2$

Circumference = $2\pi \cdot r$

1. Area of a Rectangle
   a. $l = 7$ and $w = 5$ **b.** $l = 4$ and $w = 6$

2. Perimeter of a Rectangle
   a. $l = 14$ and $w = 9$ **b.** $l = 11$ and $w = 7$

3. Area of a Triangle
   a. $b = 8$ and $h = 6$ **b.** $b = 5$ and $h = 8$

4. Area of a Circle (Use 3.14 for π)
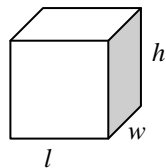   **a.** $r = 7$ **b.** $r = 4$

5. Circumference of a Circle (Use 3.14 for π)
   a. $r = 6$ **b.** $r = 3$

Use the formulas for the volume and surface area of a rectangular prism to evaluate.

Volume = lwh

Surface Area = $2(lw + wh + hl)$

6. Volume of a Rectangular Prism → $l = 3$, $w = 2$, and $h = 6$

7. Surface Area of a Rectangular Prism → $l = 5$, $w = 3$, and $h = 4$

Lesson 9 ~ Evaluating More Formulas

Name_____   Period_____   Date_____

Use the simple interest formula, $I = p \cdot r \cdot t$, to evaluate the amount of interest earned.

1. Find the amount of interest when $p = \$300$, $r = 5\%$ and $t = 4$ years.

2. Find the amount of interest when $p = \$1500$, $r = 8\%$ and $t = 3$ years.

3. Carly deposited $800 in an account for 4 years at 3.5% interest. How much money did she earn?

Use the formula $d = rt$ to evaluate distances.

4. Find the distance traveled when $r = 25$ miles per hour and $t = 3$ hours.

5. Victor drives at a speed of 45 miles per hour. He drives 5 hours before needing to stop for gas. How far did he travel?

6. Omar runs 6 miles per hour for 0.5 hours. How far did he run?

Use the formula $B = \dfrac{h}{a}$ to evaluate batting averages. Round to the nearest thousandth.

7. Find the batting average when $h = 12$ and $a = 46$.

8. Maggie has been up to bat 34 times this season. She has had 11 hits. What is her batting average?

Lesson 10 ~ Simplifying Algebraic Expressions

Name_____ Period_____ Date_____

Simplify each algebraic expression by combining like terms.

1. $5p + 2p + 6p$

2. $6y + 3y - 4y$

3. $3x - x + 7x - 4x$

4. $15f + 6n - 8f$

5. $7 + 9 + 3z - 2z + 4$

6. $3k + 3 - k + 4k - 3$

7. $12g + 5t + 3t - 2t - 6g$

8. $2x + 2y + x + 3x + y - 4x$

9. $100 + 3x + 2x - 25 - 10$

10. $4j + 2m + 3m - 3j$

11. $7y + 3 - 1 + 12y$

12. $9 + 5n - 3 - 5n$

Write an algebraic expression for each word phrase and then simplify.

13. t plus the product of three and t

14. the sum of four and x minus two

15. the product of k and eight decreased by three times k

16. fifteen more five plus twice y

Lesson 11 ~ The Distributive Property

Name_____   Period_____   Date_____

Fill in the blanks using the Distributive Property.

1. $3(2+6) = 3(\_\_\_) + \_\_\_(6)$

2. $7(10-6) = \_\_\_(10) - \_\_\_(6)$

3. $4(8+2) = 4(\_\_\_) + \_\_\_(\_\_\_)$

4. $\frac{1}{4}(12+4) = \frac{1}{4}(\_\_\_) + \_\_\_(4)$

Use the Distributive Property to evaluate each expression.

5. $3(5+4)$

6. $9(11+3)$

7. $4(15-6)$

8. $6(3-0.8)$

9. $7(4+2.6)$

10. $4(20+2)$

11. $2(4+6) + 4(8+5)$

12. $5(12-5) + 7(10+1)$

Use the Distributive Property to find each product. Show your work.

13. $7(104)$

14. $9(98)$

15. $4(9.6)$

16. $7(2006)$

17. $3(6.95)$

18. $5(402)$

19. James went to the game store to purchase video games. Each video game costs $19.95.
  a. Use the Distributive Property to show how James could mentally calculate the cost of 4 games.

  b. How much will James pay for 4 games?

Lesson 12 ~ Using the Distributive Property with Variables

Name_____   Period_____   Date_____

Use the Distributive Property to simplify.

1. $3(k+4)$

2. $8(x-2)$

3. $5(t+7)$

4. $4(y-0.2)$

5. $6(3x+4)$

6. $3(m+6)+7(m-2)$

Simplify each expression.

7. $5(x+4)+2x$

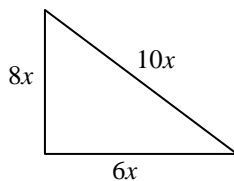**8.** $7(6x+3)-8$

9. $9+5x+6(x+2)$

10. $4(3x+5)-13$

11. $3(x-5)+2x$

12. $7+2(4x-2)$

Write and simplify an expression for the perimeter of each figure.

13.

$8x$ $10x$ $6x$

14.

$x+3$ $7x+4$