

Name _____ Period _____ Date _____

Writing and Evaluating Expressions Worksheet

Evaluate each expression using the values $m = 7$, $r = 8$, and $t = 2$.

1. $5m - 6$

2. $4m + t$

3. $\frac{r}{t}$

4. mt

5. $5t + 2m$

6. rm

7. $3m - 5t$

8. $\frac{mr}{t}$

Write a word phrase for each algebraic expression.

10. $n + 16$

11. $3.2n$

12. $25.6 - n$

13. $\frac{n}{24}$

14. $\frac{24}{n}$

15. $n - 15$

Write an algebraic expression for each word phrase.

16. 12 more than m machines

17. six times the daily amount of fiber f
in your diet

18. your aunt's age a minus 25

19. the total number of seashells s divided by 10

20. 9 less than k

21. m divided by 6

Study Guide and Intervention**Algebra: Variables and Expressions**

To evaluate an algebraic expression you replace each variable with its numerical value, then use the order of operations to simplify.

EXAMPLE 1 Evaluate $6x - 7$ if $x = 8$.

$$\begin{aligned} 6x - 7 &= 6(8) - 7 && \text{Replace } x \text{ with } 8. \\ &= 48 - 7 && \text{Use the order of operations.} \\ &= 41 && \text{Subtract 7 from 48.} \end{aligned}$$

EXAMPLE 2 Evaluate $5m - 3n$ if $m = 6$ and $n = 5$.

$$\begin{aligned} 5m - 3n &= 5(6) - 3(5) && \text{Replace } m \text{ with } 6 \text{ and } n \text{ with } 5. \\ &= 30 - 15 && \text{Use the order of operations.} \\ &= 15 && \text{Subtract 15 from 30.} \end{aligned}$$

EXAMPLE 3 Evaluate $\frac{ab}{3}$ if $a = 7$ and $b = 6$.

$$\begin{aligned} \frac{ab}{3} &= \frac{(7)(6)}{3} && \text{Replace } a \text{ with } 7 \text{ and } b \text{ with } 6. \\ &= \frac{42}{3} && \text{The fraction bar is like a grouping symbol.} \\ &= 14 && \text{Divide.} \end{aligned}$$

EXAMPLE 4 Evaluate $x^3 + 4$ if $x = 3$.

$$\begin{aligned} x^3 + 4 &= 3^3 + 4 && \text{Replace } x \text{ with } 3. \\ &= 27 + 4 && \text{Use the order of operations.} \\ &= 31 && \text{Add 27 and 4.} \end{aligned}$$

EXERCISES

Evaluate each expression if $a = 4$, $b = 2$, and $c = 7$.

- | | | |
|--------------------|-------------------|--------------|
| 1. $3ac$ | 2. $5b^3$ | 3. abc |
| 4. $5 + 6c$ | 5. $\frac{ab}{8}$ | 6. $2a - 3b$ |
| 7. $\frac{b^4}{4}$ | 8. $c - a$ | 9. $20 - bc$ |
| 10. $2bc$ | 11. $ac - 3b$ | 12. $6a^2$ |
| 13. $7c$ | 14. $6a - b$ | 15. $ab - c$ |

Variable and Verbal Expressions

Write each as an algebraic expression.

1) the difference of 10 and 5

2) the quotient of 14 and 7

3) u decreased by 17

4) half of 14

5) x increased by 6

6) the product of x and 7

7) the sum of q and 8

8) 6 squared

9) twice q

10) the product of 8 and 12

11) the quotient of 18 and n

12) n cubed

Write each as a verbal expression.

13) $\frac{x}{2}$

14) $a + 9$

15) $19 - 3$

16) $5n$

17) q^2

18) $\frac{40}{5}$

19) $\frac{a}{8}$

20) $x + 8$

21) $n - 14$

22) 2^2

23) $\frac{60}{5}$

24) $n \cdot 6$

Evaluate each expression.

25) 5 squared

26) the product of 8 and 10

27) 20 decreased by 17

28) the quotient of 96 and 8

29) twice 6

30) 10 less than 17

31) 9 times 5

32) 10 increased by 8

33) 7 squared

34) the product of 4 and 5