

Lesson 1 Reteach

Algebraic 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 $x = 8$.

$$\begin{aligned} 6x - 7 &= 6(8) - 7 \\ &= 48 - 7 \\ &= 41 \end{aligned}$$

Replace x with 8.
Use the order of operations.
Subtract 7 from 48.

Example 2

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

$$\begin{aligned} 5m - 3n &= 5(6) - 3(5) \\ &= 30 - 15 \\ &= 15 \end{aligned}$$

Replace m with 6 and n with 5.
Use the order of operations.
Subtract 15 from 30.

Example 3

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

$$\begin{aligned} \frac{ab}{3} &= \frac{(7)(6)}{3} \\ &= \frac{42}{3} \\ &= 14 \end{aligned}$$

Replace a with 7 and b with 6.
The fraction bar is like a grouping symbol.
Divide.

Example 4

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

$$\begin{aligned} x^3 + 4 &= 3^3 + 4 \\ &= 27 + 4 \\ &= 31 \end{aligned}$$

Replace x with 3.
Use the order of operations.
Add 27 and 4.

Exercises

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

1. $3ac$ **84**

2. $5b^3$ **40**

3. abc **56**

4. $5 + 6c$ **47**

5. $\frac{ab}{8}$ **1**

6. $2a - 3b$ **2**

7. $\frac{b^4}{4}$ **4**

8. $c - a$ **3**

9. $20 - bc$ **6**

10. $2bc$ **28**

11. $ac - 3b$ **22**

12. $6a^2$ **96**

13. $7c$ **49**

14. $6a - b$ **22**

15. $ab - c$ **96** **1**

Lesson 1 Homework Practice

Algebraic Expressions

Evaluate each expression if $r = 5$, $s = 2$, $t = 7$, and $u = 1$.

1. $s + 7$ **9**

2. $9 - u$ **8**

3. $3t + 1$ **22**

4. $5r - 4$ **21**

5. $t - s$ **5**

6. $u + r$ **6**

7. $11t - 7$ **70**

8. $6 + 3u$ **9**

9. $4r - 10s$ **0**

10. $3u^2$ **3**

11. $2t^2 - 18$ **80**

12. $r^2 + 8$ **33**

13. $\frac{s}{2}$ **1**

14. $\frac{30}{r}$ **6**

15. $\frac{(3 + u)^2}{8}$ **2**

Evaluate each expression if $a = 4.1$, $b = 5.7$, and $c = 0.3$.

16. $a + b - c$ **9.5**

17. $10 - (a + b)$ **0.2**

18. $b - c + 2$ **7.4**

19. **MOON** The expression $\frac{w}{6}$ gives the weight of an object on the Moon in pounds with a weight of w pounds on Earth. What is the weight of a space suit on the Moon if the space suit weighs 178.2 pounds on Earth? **29.7 pounds**

20. Complete the table.

Pounds (p)	Ounces ($16p$)
1	16
2	32
3	48
4	64
5	80