

LESSON

12

Evaluating Expressions

Review It!

When you evaluate expressions, remember these words:

variable a letter that represents a number

algebraic expression numbers, letters, and/or symbols connected by an operation or operations

$\frac{c}{9} + 6$, $5a$, and $b + 2$ are algebraic expressions.

When you evaluate expressions, always multiply and divide before adding and subtracting.

Evaluate $9a + 11$ when $a = 6$.

Step 1 Identify the operations that are used.

$9a + 11$ means 9 times a plus 11.

REMEMBER $9a$ means $9 \times a$.

Step 2 Substitute 6 for every a in the expression.

$9 \times \underline{\quad} + 11$

Step 3 Find the value of the expression.

$9 \times 6 + 11 = \underline{\quad} + 11 = \underline{\quad}$

REMEMBER Multiply before adding.

So, the value of $9a + 11$ when $a = 6$ is $\underline{\quad}$.

Try It!

Evaluate each expression when $x = 10$.

1. $x + 2$ _____ 2. $x - 6$ _____
 3. $5x$ _____ 4. $x \div 2$ _____

Evaluate each expression.

5. $3x + 8$ when $x = 6$ _____
 6. $5a - 9$ when $a = 8$ _____
 7. $8y + 2$ when $y = \frac{1}{4}$ _____
 8. $5d - 2$ when $d = 1.2$ _____
 9. $\frac{x}{6} + 3$ when $x = 24$ _____
 10. $\frac{p}{5} - 2$ when $p = 30$ _____

Solve.

11. A plumber charges \$50 per hour and \$60 extra to work on Saturday. The cost for h hours on Saturday can be found using the expression $50h + 60$. What is the total cost for 5 hours on Saturday? _____
12. A company produces gadgets. The cost to make g gadgets can be found using the expression $24g + 12$. What is the total cost of making 140 gadgets? _____

Ask Yourself

1.

What is the value of x ?
2, or 10?

5.

What is $3x$ when $x = 6$?
 $3 \times x$, or 36 ?

11.

What number do you write for h ?
50, or 60?

On Your Own!

Circle the best answer for each question.

1. What is the value of the expression $x - 11$ when $x = 46$?
- A. 35 C. 55
B. 37 D. 57
2. What is the value of the expression $5c + 4$ when $c = 9$?
- A. 18 C. 41
B. 40 D. 49
3. What is the value of the expression $5 + 2x$ when $x = 2.5$?
- A. 10 C. 11
B. 10.5 D. 11.5
4. What is the value of the expression $7d - 2$ when $d = -5$?
- A. -37 C. 14
B. -14 D. 37
5. What is the value of the expression $\frac{3+p}{7}$ when $p = 18$?
- A. 21 C. 3
B. 14 D. 2
6. What is the value of the expression $3.5\nu + 7$ when $\nu = 3$?
- A. 13.5
B. 16.5
C. 17.5
D. 19.5
7. A plumber charges \$45 for travel and \$60 per hour. The cost for h hours can be found using this expression.
- $$60h + 45$$
- What is the total cost of a repair that takes 3 hours?
- A. \$648
B. \$225
C. \$165
D. \$108
8. A company makes widgets. The cost of making w widgets can be found using this expression.
- $$13w + 51$$
- What is the total cost of making 95 widgets?
- A. \$1,286
B. \$1,446
C. \$4,858
D. \$6,080

9. Lois makes business cards. She charges \$35 for the design and \$0.05 per card. The price to buy c cards can be found using this expression.

$$0.05c + 35$$

- Part A What is the total price to buy 200 business cards from Lois?

- Part B What is the total price to buy 2,000 business cards from Lois?

Math Words

Fill in the blanks

10. A letter that represents a number is a(n) _____.
11. An expression with variables, numbers, and/or symbols connected by an operation or operations is a(n) _____.
12. When finding the value of a math expression, multiply and divide before you _____ and _____.