

Key

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 .

Try It!

Evaluate each expression when $x = 10$.



- 1. $x + 2$ 12
- 2. $x - 6$ 4
- 3. $5x$ 50
- 4. $x \div 2$ 5

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

Evaluate each expression.

- 5. $3x + 8$ when $x = 6$ 26
- 6. $5a - 9$ when $a = 8$ 31
- 7. $8y + 2$ when $y = \frac{1}{4}$ 4
- 8. $5d - 2$ when $d = 1.2$ 5
- 9. $\frac{x}{6} + 3$ when $x = 24$ 7
- 10. $\frac{p}{5} - 2$ when $p = 30$ 4

5. What is $3x$ when $x = 6$?
 $3 \times x$, or 36 ?
1.2
5
70

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? 310
- 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? 3372

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

140
24
1560
280
3360
12



On Your Own!

Circle the best answer for each question.

1. What is the value of the expression $x - 11$ when $x = 46$? **46 - 11**

- A. 35 C. 55
B. 37 D. 57

2. What is the value of the expression $5c + 4$ when $c = 9$? **5 * 9 + 4**

- A. 18 C. 41
B. 40 D. 49

3. What is the value of the expression $5 + 2x$ when $x = 2.5$? **5 + 2 * 2.5**

- A. 10 C. 11
B. 10.5 D. 11.5

4. What is the value of the expression $7d - 2$ when $d = -5$? **7 * -5 - 2**

- A. -37 C. 14
B. -14 D. 37

-35 - 2 = -37

5. What is the value of the expression $\frac{3+p}{7}$ when $p = 18$?

- A. 21 C. 3
B. 14 D. 2

$\frac{3+18}{7} = \frac{21}{7} = 3$

6. What is the value of the expression $3.5v + 7$ when $v = 3$?

- A. 13.5
B. 16.5
C. 17.5
D. 19.5

**3.5 * 3 + 7
10.5 + 7
= 17.5**

7. A plumber charges \$45 for travel and \$60 per hour. The cost for h hours can be found using this expression.

$60h + 45$ **180 + 45 =**

What is the total cost of a repair that takes 3 hours?

- A. \$648
B. \$225
C. \$165
D. \$108

**180
45

225**

8. A company makes widgets. The cost of making w widgets can be found using this expression.

$13w + 51$ **13 * 95 + 51**

What is the total cost of making 95 widgets?

- A. \$1,286
B. \$1,446
C. \$4,858
D. \$6,080

**13 * 95 + 51
1235
+ 51

1286**

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?

$.05 * 200 + 35 = 10.00 + 35 = 45$

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

~~450~~ 100 + 35 = 135



Fill in the blanks

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