

# Evaluating Two Variables

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Score: \_\_\_\_\_ / 18

## Quick Review and Helpful Hints

When an expression has two variables, substitute a value for *each* one (in parentheses), then simplify using the order of operations. Be sure to replace every copy of each variable before you start computing.

▶ **Example:** Evaluate  $2x + 3y$  when  $x = 4$  and  $y = 2$ . **Work:** Substitute both values:  $2(4) + 3(2)$ . Multiply each term first:  $8 + 6$ . Then add. ★ **Answer:** 14

### ◆ Practice Problems

Evaluate each expression for the given values.

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>1. <math>x + y</math>, when <math>x = 5, y = 3</math> _____</p> <p>2. <math>xy</math>, when <math>x = 6, y = 4</math> _____</p> <p>3. <math>2x + y</math>, when <math>x = 3, y = 7</math> _____</p> <p>4. <math>x - y</math>, when <math>x = 10, y = 4</math> _____</p> <p>5. <math>3x + 2y</math>, when <math>x = 2, y = 5</math> _____</p> <p>6. <math>xy + 1</math>, when <math>x = 4, y = 3</math> _____</p> <p>7. <math>x^2 + y</math>, when <math>x = 3, y = 8</math> _____</p> | <p>8. <math>2(x + y)</math>, when <math>x = 5, y = 1</math> _____</p> <p>9. <math>5x - y</math>, when <math>x = 4, y = 6</math> _____</p> <p>10. <math>\frac{x}{y}</math>, when <math>x = 12, y = 3</math> _____</p> <p>11. <math>x^2 + y^2</math>, when <math>x = 3, y = 4</math> _____</p> <p>12. <math>xy - x</math>, when <math>x = 5, y = 2</math> _____</p> <p>13. <math>4x + y</math>, when <math>x = -2, y = 10</math> _____</p> <p>14. <math>x - 2y</math>, when <math>x = 9, y = 3</math> _____</p> |
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### ◆ Word Problems

15. The area of a rectangle is  $A = lw$ . Find the area when  $l = 8$  m and  $w = 5$  m. \_\_\_\_\_
16. The perimeter of a rectangle is  $2l + 2w$ . Find it when  $l = 7$  ft and  $w = 3$  ft. \_\_\_\_\_
17. A worker earns  $15h + 20b$  dollars for  $h$  hours plus  $b$  bonuses. Find the pay when  $h = 6$  and  $b = 2$ . \_\_\_\_\_
18. The expression  $\frac{a + b}{2}$  gives the average of two test scores. Find it when  $a = 88$  and  $b = 92$ . \_\_\_\_\_



## Answer Keys

- |                                    |                                     |                                                               |
|------------------------------------|-------------------------------------|---------------------------------------------------------------|
| 1. <input type="text" value="8"/>  | 7. <input type="text" value="17"/>  | 13. <input type="text" value="2"/>                            |
| 2. <input type="text" value="24"/> | 8. <input type="text" value="12"/>  | 14. <input type="text" value="3"/>                            |
| 3. <input type="text" value="13"/> | 9. <input type="text" value="14"/>  | 15. <input type="text" value="40 m&lt;sup&gt;2&lt;/sup&gt;"/> |
| 4. <input type="text" value="6"/>  | 10. <input type="text" value="4"/>  | 16. <input type="text" value="20 ft"/>                        |
| 5. <input type="text" value="16"/> | 11. <input type="text" value="25"/> | 17. <input type="text" value="\$130"/>                        |
| 6. <input type="text" value="13"/> | 12. <input type="text" value="5"/>  | 18. <input type="text" value="90"/>                           |

### Step-by-Step Explanations

1. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $5 + 3 = 8$ . So the final answer is 8.
2. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $6 \cdot 4 = 24$ . So the final answer is 24.
3. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $2(3) + 7 = 6 + 7 = 13$ . So the final answer is 13.
4. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $10 - 4 = 6$ . So the final answer is 6.
5. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $3(2) + 2(5) = 6 + 10 = 16$ . So the final answer is 16.
6. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $4 \cdot 3 + 1 = 12 + 1 = 13$ . So the final answer is 13.
7. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $3^2 + 8 = 9 + 8 = 17$ . So the final answer is 17.
8. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $2(5 + 1) = 2(6) = 12$ . So the final answer is 12.
9. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $5(4) - 6 = 20 - 6 = 14$ . So the final answer is 14.
10. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $\frac{12}{3} = 4$ . So the final answer is 4.
11. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $3^2 + 4^2 = 9 + 16 = 25$ . So the final answer is 25.
12. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $5 \cdot 2 - 5 = 10 - 5 = 5$ . So the final answer is 5.
13. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $4(-2) + 10 = -8 + 10 = 2$ . So the final answer is 2.
14. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $9 - 2(3) = 9 - 6 = 3$ . So the final answer is 3.
15. Step by step: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $A = 8 \cdot 5 = 40$  square meters. So the final answer is  $40 \text{ m}^2$ .
16. Take it one move at a time: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $2(7) + 2(3) = 14 + 6 = 20$  feet. So the final answer is 20 ft.
17. Start by naming the process: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $15(6) + 20(2) = 90 + 40 = \$130$ . So the final answer is \$130.
18. A good way to think about this is: Read what the problem is asking, choose the matching rule, write the setup, and then simplify one step at a time. The setup/work is  $\frac{88 + 92}{2} = \frac{180}{2} = 90$ . So the final answer is 90.



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