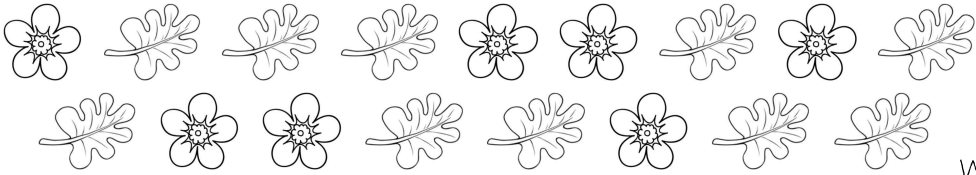


## COMBINING LIKE TERMS

Ms. Vara's science class collected the following items on a nature walk. Group the "like items" together and determine the total number of each item collected.



Leaves: \_\_\_\_\_

Wildflowers: \_\_\_\_\_

Algebraic terms can be grouped in a similar way by combining \_\_\_\_\_.

### LIKE TERMS

- Algebraic terms are considered "like terms" if they have the same \_\_\_\_\_ with the same \_\_\_\_\_.
- \_\_\_\_\_ are "like terms" since they do not have a variable.

1. For each set of terms listed in the table below, circle the 2 like terms and cross out the "unlike term". Then, explain your thinking.

| TERMS           | EXPLAIN |
|-----------------|---------|
| $3x, 3y, 4y$    |         |
| $10x, 5x, 2x^2$ |         |
| $10, 7x, 7$     |         |

Use algebra tiles to model the expressions in 2-4 (the first has been given as an example). Then, use the algebra tiles to help you combine like terms and record a simplified expression.

|   |   |  |
|---|---|--|
| <p>2.</p> <p style="text-align: center;"><math>2x + 3 + 3x</math></p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; width: 30px; height: 100px; display: flex; align-items: center; justify-content: center;">x</div> <div style="border: 1px solid black; padding: 5px; width: 30px; height: 100px; display: flex; align-items: center; justify-content: center;">x</div> <div style="border: 1px solid black; padding: 5px; width: 20px; height: 30px; display: flex; align-items: center; justify-content: center;">1</div> <div style="border: 1px solid black; padding: 5px; width: 30px; height: 100px; display: flex; align-items: center; justify-content: center;">x</div> <div style="border: 1px solid black; padding: 5px; width: 30px; height: 100px; display: flex; align-items: center; justify-content: center;">x</div> <div style="border: 1px solid black; padding: 5px; width: 30px; height: 100px; display: flex; align-items: center; justify-content: center;">x</div> </div> <p style="text-align: center; margin-top: 10px;">_____</p> | <p>3.</p> <p style="text-align: center;"><math>4 + x + 2x + 1</math></p> <p style="text-align: center; margin-top: 10px;">_____</p> | <p>4.</p> <p style="text-align: center;"><math>x + 3 + x - 1</math></p> <p style="text-align: center; margin-top: 10px;">_____</p> |
|---|---|--|

We can simplify algebraic expressions by combining \_\_\_\_\_.

## COMBINING LIKE TERMS

- \_\_\_\_\_ the like terms in the expression.
- Be careful to keep the \_\_\_\_\_ that is in front of the term.
- Combine the like terms to \_\_\_\_\_.

### EXAMPLE:

$$9x + 8 - 2x + 1$$

Color code or use a shape to identify each term, as shown in the first example. Then combine like terms to simplify. In questions 5-13, simplify the expression.

$$\boxed{11x} + \boxed{19} + \boxed{9x}$$

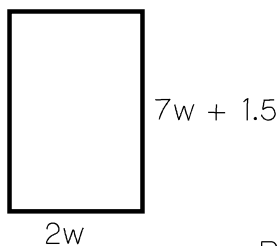
$$14x + 3y - 5x$$

$$16c + 9 + 5c - 3$$

|                              |                            |                               |
|------------------------------|----------------------------|-------------------------------|
| 5.<br>$5 + 11y + 9$          | 6.<br>$11a - 5c + 3a$      | 7.<br>$4d - 8 - 3d$           |
| 8.<br>$8x^2 + 10x + x$       | 9.<br>$16w + 11 + 3 + 5w$  | 10.<br>$18r + 7q - 11r + 13q$ |
| 11.<br>$6t + 19s - 10s + 2t$ | 12.<br>$15d + 3d - 7d - d$ | 13.<br>$4x^2 + 14x^2 - x$     |

Apply your knowledge of simplifying expressions to answer questions 14-15.

14. Write an expression to represent the perimeter of the rectangle shown below.



Perimeter: \_\_\_\_\_

15. Ms. Teague wrote an expression on the board as shown below, but parts of the expression got erased. She knows the expression simplifies to  $10x + 13y$ . Find the missing values in Ms. Teague's expression.

$$\boxed{\phantom{00}}x + 8y - 2x + \boxed{\phantom{00}}y$$

## COMBINING LIKE TERMS

1. Mrs. Kent asked her students to write pairs of like terms. Circle the names of the students who correctly completed the task.

LEIGH

DESMOND

EMIKO

CARTER

JAN

$$3w \text{ and } -5w$$

$$11 \text{ and } 4$$

$$6c \text{ and } 2c^2$$

$$9x \text{ and } 9y$$

$$3x^2 \text{ and } x^2$$

In questions 2-7, simplify the expressions by combining like terms.

2.  $6 + 7x + 14$

3.  $3b + 8 + 11b$

4.  $11y + 4 - 2y$

5.  $18y + 3z - 9y + 12z$

6.  $21h - 3h - h$

7.  $2c + 11d - 5d - c$

Apply your knowledge of simplifying expressions to answer questions 8-9.

8. Luna simplified an expression to represent the perimeter of the rectangle shown but made an error. Describe her mistake and then correctly simplify an expression to represent the perimeter of the rectangle.

3w



4w + 1

$$4w + 1 + 3w$$

$$7w + 1$$

9. Molly combined like terms to simplify an expression, but part of the original expression got erased. Determine the missing values in her original expression.

$$\square m + n - 4m + \square n$$

$$5m + 4n$$