

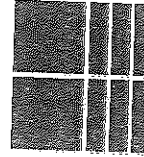
6.6 Like Terms

Activity: Use Algebra Tiles

The area of the rectangle is the sum of the areas of the algebra tiles.

The area of each square green tile is x^2 square units.

The area of each long green tile is x square units.



Inquire

- How many pieces make up the rectangle?
- Use each piece to write an expression for the area of the rectangle in terms of x^2 and x .
- Use the idea that $x + x + x = 3x$ to combine as many terms as possible in the expression you wrote in question 2. What is your new expression?

Terms that have the same variable parts are called **like terms**. The terms $3x$, $4x$, and $6x$ are like terms. The terms $5x$, $2x^2$, and $3y$ are **unlike terms**. They have different variable parts.

Like terms can be combined.

Since $2x$ means $x + x$, and $3x$ means $x + x + x$, then

$$\begin{aligned} 2x + 3x &= x + x + x + x + x \\ &= 5x \end{aligned}$$

Example

Simplify $4x + 2y - 2x - 3y$.

Solution

Combine like terms.

$$\begin{aligned} 4x + 2y - 2x - 3y &= 4x - 2x + 2y - 3y \\ &= 2x - y \end{aligned}$$

Practice

Simplify.

- | | |
|----------------------|----------------------------|
| 1. $3x + 5x$ | 2. $6a^2 - 3a^2$ |
| 3. $2t + 3t + 4t$ | 4. $7w - 2w + 3w$ |
| 5. $9c - 8c - c$ | 6. $y + 5y - y$ |
| 7. $6a + 9 + 7a - 3$ | 8. $3x + 7x + 4x^2 + 3x^2$ |
| 9. $9 + 6b - b + 4b$ | 10. $x + y - x - y$ |
| 11. $a + b + b + a$ | 12. $6w - 5w - w + 8y$ |

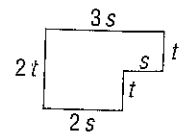
Problems and Applications

Simplify, then evaluate for $t = 2$ and $w = 3$.

13. $6t - 3t + 4t + 2w$ 14. $5w + 7t - 5t + w$
 15. $6t + 4w - 6t - 3w$ 16. $3t - 4t + w - 2w$

17. a) Write and simplify an expression for the perimeter of the figure.

b) Find the perimeter if $s = 40$ m and $t = 30$ m.



18. Write two different expressions that simplify to $2x + 3y$. Compare your expressions with your classmates'.