



# Collecting Like Terms

An **expression** can be separated into **terms** which are joined together by + or - signs. If there's no + or - in front of a term, it means there's an invisible + sign.

In the expression  $5a + 3b$ , the terms are  $5a$  and  $3b$ .

**Like terms** are made from the same letters.

For example:

$2a$  and  $3a$  are **like terms**.

$5a$  and  $3b$  are unlike terms.

You can **simplify** an expression by collecting **like** terms. To collect like terms, we either **add** or **subtract** them.

## Example 1

Simplify  $a + a + a + a + a$

In this case, we just add up all the  $a$ s.

$$a + a + a + a + a = 5a$$

## Example 2

Simplify  $4y + 5y - 2y$

Again, just **combine the terms**; just don't forget there's a - before the  $2y$ .

$$4y + 5y - 2y = 7y$$

If you have a mixture of **different terms**, it's a bit trickier. To **simplify** expressions like this, you must still only collect **like** terms.

## Example 3

$$2x - 5 + 5x + 6$$

Step 1. Put bubbles round each term. Just make sure that the +/- sign is in front of each.

$$(2x) (-5) (+5x) (+6)$$

Step 2. Combine the like terms:

$$2x + 5x = 7x$$

$$-5 + 6 = 1$$

Remember, if there is no sign in front of a term then we use + .

Our answer becomes  $7x + 1$ .

**Your turn**

Simplify each expression:

1.  $a + a + a + a$

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2.  $2b + 7b + 4b$

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3.  $5x + 7x - 2x$

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4.  $6y + 4y - 5y$

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5.  $4x - 2x + 3x$

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6.  $2n + 3n - 4n$

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7.  $x^2 + 3x^2 - 2x^2$

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8.  $6c - 5c + 2c$

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Collect the like terms to simplify each expression:

1.  $3a + 6b + 2a$

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2.  $9y + 8p + 9y - 3p$

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3.  $8k + 3u + 5u - 5k$

\_\_\_\_\_

4.  $7s + 4q - 5s + 3q$

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5.  $x - y + 4x + 4y$

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6.  $5d + 5d + s - 7d$

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7.  $2a + 3b + 5a - 3c - 4b + 5c$

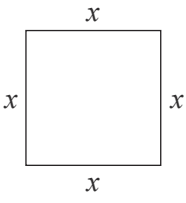
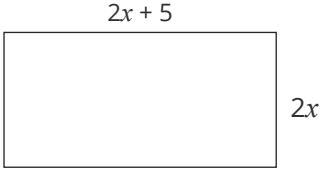
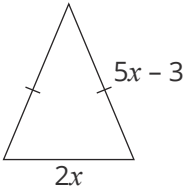
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8.  $x + 2y + 3x - z - 4z$

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**Challenge**

For each of the shapes, write the perimeter as a simplified expression. (All measurements are given in cm.)

		
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