

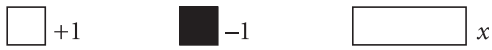
6.3

Solving Equations Involving Integers





Quick Review

As with balance scales, algebra tiles can be used to model and solve equations.



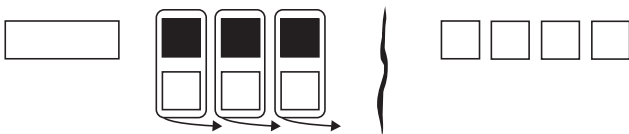
The $+1$ tile and -1 tile are called **unit tiles**. The x -tile is a **variable tile**.

One white unit tile and one  $+1$  -1 black unit tile form a **zero pair**.

To solve the equation $x - 3 = 1$, use tiles to represent the equation. What you do to one side of the equation, you also do to the other side.



Isolate the x -tile by adding 3 white tiles to each side. The tiles on the left side make zero pairs. Remove the zero pairs.



This arrangement becomes:



One x -tile equals 4 white tiles. So, $x = 4$

To verify the solution: Replace the variable tile in the original equation with 4 white tiles.

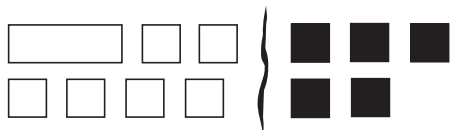


Remove zero pairs. One white tile remains on the left side. This matches the right side of the equation. So, the solution is correct.

Practice

1. Match each equation with an arrangement of tiles.

A.



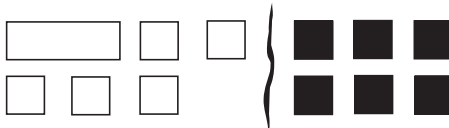
B.



C.



D.

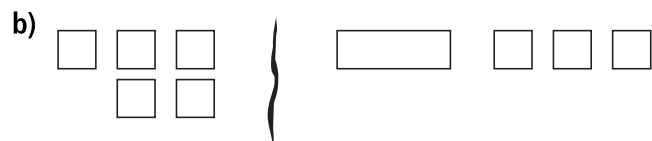


- a) $x + 5 = -6$ _____ b) $x + 6 = -5$ _____ c) $x - 5 = 6$ _____ d) $x - 6 = -5$ _____

2. Write the equation modelled by each set of algebra tiles. Then solve the equation.



Tip
To isolate the x -tile, make zero pairs.



3. Sketch a set of algebra tiles that represents each equation. Then solve the equation.

- a) $x + 3 = 9$ _____ b) $3 = x - 5$ _____

