

Warm Up Grade 7

let $n \equiv$ a number

1. Write equations for each of the following (remember to tell what your variable stands for):

(a) a number increased by 13 is 77 $n + 13 = 77$

(b) Stan age increased by 8 is 60 $n + 8 = 60$

(c) Twice the amount of snow that fell increased by 32 is 100 cm. $2n + 32 = 100$

(d) three times the number of students at the dance increased by 64 is 900. $3n + 64 = 900$

(e) the mass of the elephant divided by 8 is 220. $\frac{n}{8} = 220$ $n \div 8 = 220$

2. Translate the following into words:

(a) $4c - 2 = 18$
4 times a number decreased by 2 is 18

(b) $5d = 80$
5 times a number is 80

(c) $n - 7 = 21$
a number reduced by 7 is 21

(d) $x + 11 = 43$
a number increased by 11 is 43.

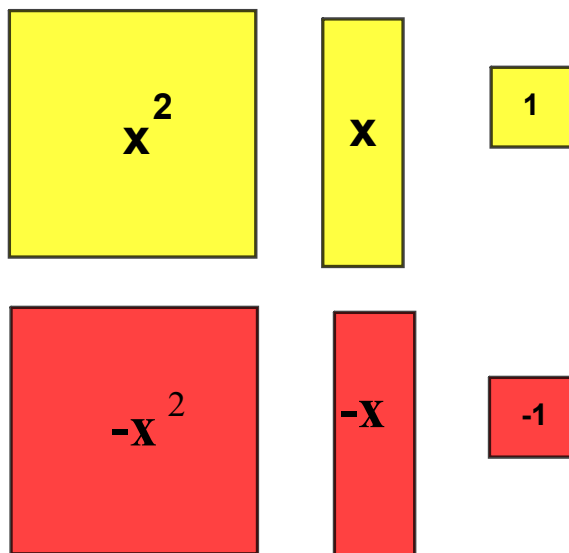
Solving Equations

Solving equations is when you find the value for the variable. One way to solve equations is by modeling.

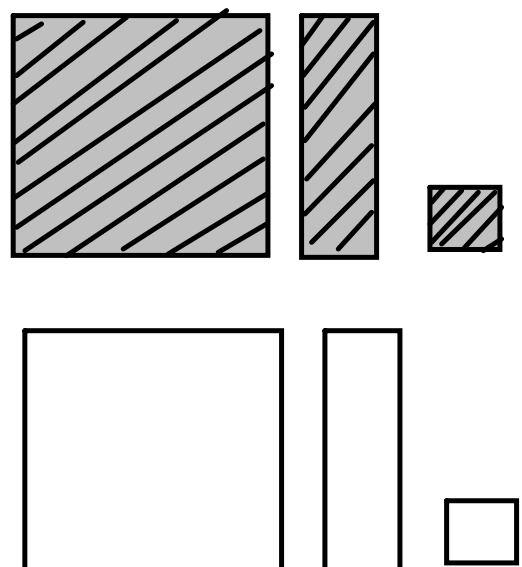
Algebra tiles can also be used to help you solve equations.

When you draw the algebra tiles, you always shade in the positive and the negatives are not shaded.

On the computer



When drawn:



Write an equation for each model

Shade = +
unshade = -

a)

$3x + 2 = 1$

b)

$-x + 3 = -2$

c)

$2x - 2 = 4$

^{yellow}
Shaded $\Rightarrow +$

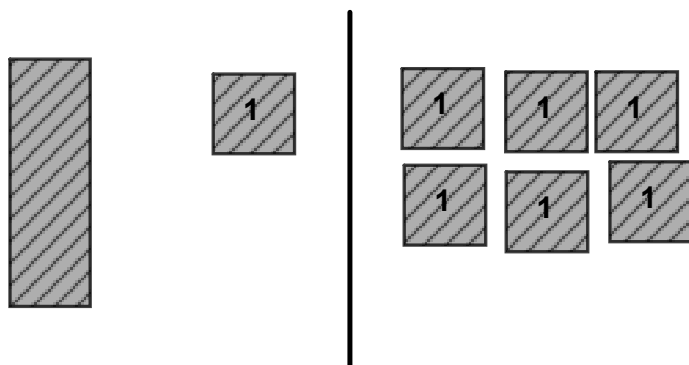
^{red}
Unshaded $\Rightarrow -$

Example: Use tiles to solve

Remember, whenever you are solving equations, whatever you do to one side of the equation, you **MUST** do to the other.

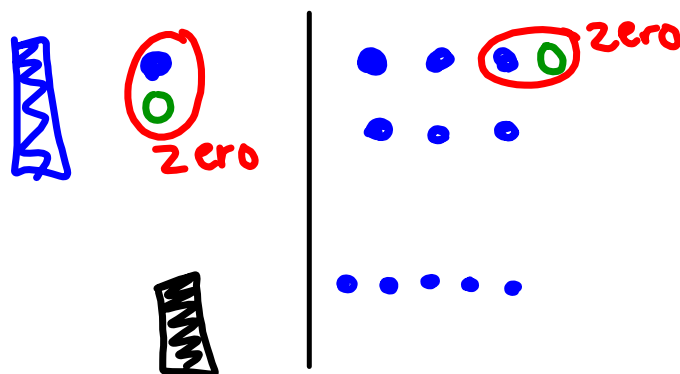
Write the equation

$$x + 1 = 6$$



Need to get "x" all by itself

You have to take away 1 from the left side, so you have to also take one away from the right side

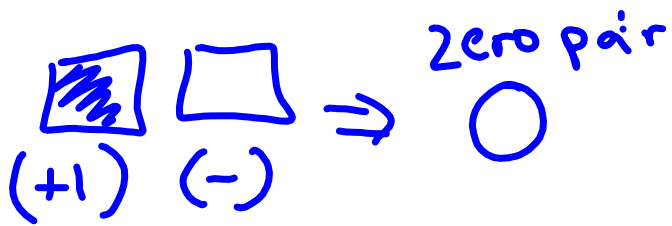


$$x + 1 - 1 = 6 - 1$$

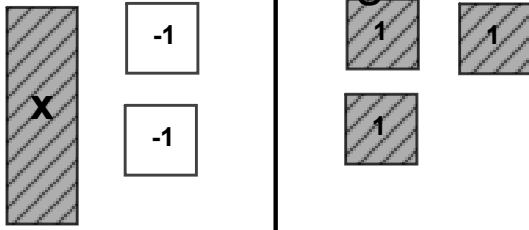
$$x + \cancel{1 - 1} = \underbrace{6 - 1}_5$$

solution

$$x = 5$$


A hand-drawn diagram in blue ink. On the left, there is a square with diagonal hatching and a plus sign $(+)$ below it. To its right is an empty square with a minus sign $(-)$ below it. An arrow points from these two squares to the text "zero pair" and a circle \bigcirc below it.

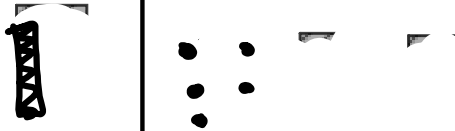
Solve the following



$$x - 2 = 3$$

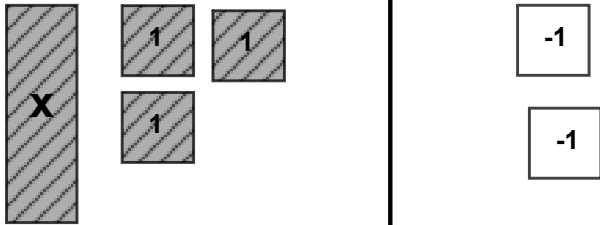


$$x - 2 + 2 = 3 + 2$$

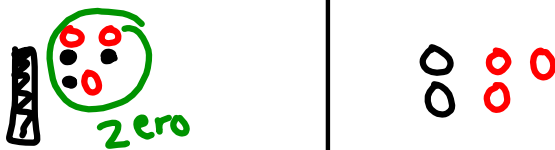


$$x = 5$$

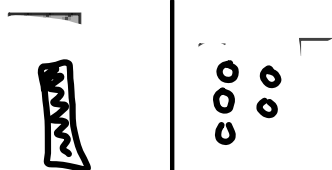
b)



$$x + 3 = -2$$



$$x + 3 - 3 = -2 - 3$$



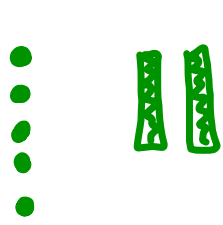
$$x = -5$$

Example: ^{plus 5} 5 more than $2n$ is 13.

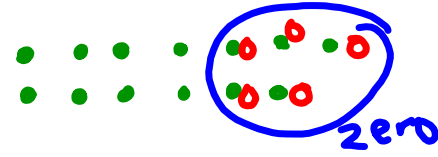
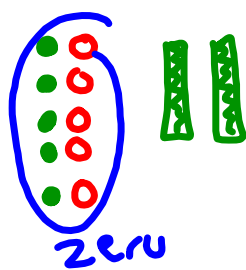
- a) Write an equation you can solve to find the number.
- b) Use tiles to SOLVE the equation
- c) Verify the solution

or $2n + 5 = 13$

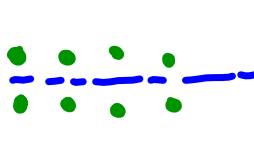
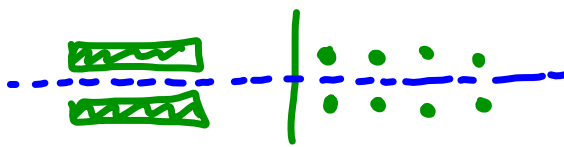
$$5 + 2n = 13$$



$2n + 5 = 13$



$2n + 5 - 5 = 13 - 5$



$$2n = 8$$

$$\div 2 \quad \div 2$$



$n = 4$

$$7x + 2 = 37$$

$$7x + \cancel{2}^{-2} = \underbrace{37 - 2}$$

$$7x = 35$$

$\div 7 \quad \quad \div 7$

$$\boxed{x = 5}$$

$$5x - 4 = 36$$

$$5x - \cancel{4} + 4 = \underbrace{36 + 4}$$

$$5x = 40$$

$\div 5 \qquad \div 5$

$$\boxed{x = 8}$$

Homework pg. 41 # 1-3 ^{abd}

Constant \Rightarrow # alone
add or subtract
variable \rightarrow letter
Coefficient \rightarrow # in front
of letter

$$2x = 16$$

$$\frac{2x}{\frac{1}{2}} = \frac{16}{\frac{1}{2}}$$

$$x = 8$$

$$2x + 7 = 11$$

Coeff \Rightarrow 2
Var. \Rightarrow x letter

Attachments

Grade 7 Unit 1 Shee 13.docx