



## Warm Up Grade 7

Write an equation and solve using tiles

a) a number increased by 3 is 15

$$n + 3 = 15$$

$$n + 3 - 3 = 15 - 3$$

$$n = 12$$



Write an equation and solve using algebra

a) Four times a number decreased by 7 is 29

$$4n - 7 = 29$$

$$4n - 7 + 7 = 29 + 7$$

$$\frac{4n}{4} = \frac{36}{4}$$

$$n = 9$$

235.

a)  $n = \text{score after } 6$

$$n + 2 = +4$$

$$n + 2 - 2 = 4 - 2$$

$$n = 2$$

b)  $p = \text{score after } 12$

$$p + (-2) = +1$$

$$p + (-2) + (+2) = +1 + +2$$

$$p = +3$$

c)  $r = \text{score after } 17$

$$r + (-4) = -2$$

$$r + (-4) + (+4) = (-2) + (+4)$$

$$r = +2$$

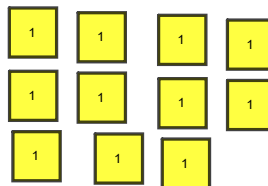
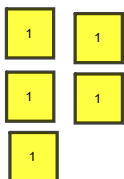
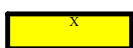
$$r - 4 = -2$$

$$r - 4 + 4 = -2 + 4$$

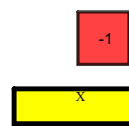
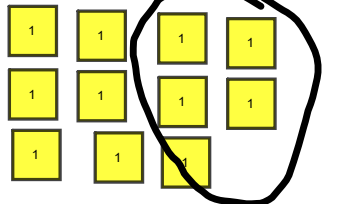
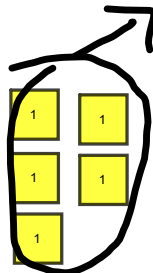
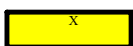
$$r = +2.$$

# Sheet - Extra Practice 3

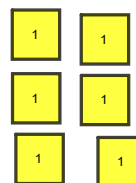
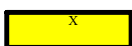
1) a)  $x + 5 = 11$



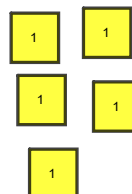
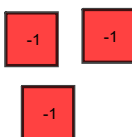
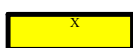
$x + 5 - 5 = 11 - 5$



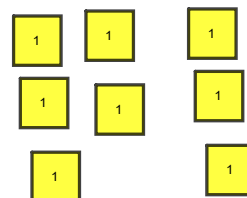
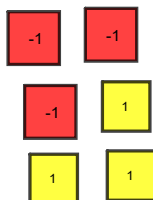
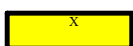
$x = 6$



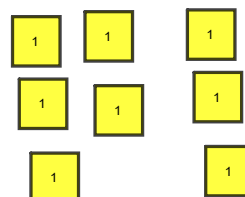
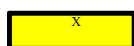
d)  $x - 3 = 5$



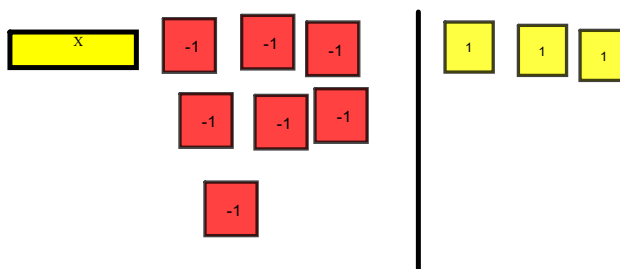
$x - 3 + 3 = 5 + 3$



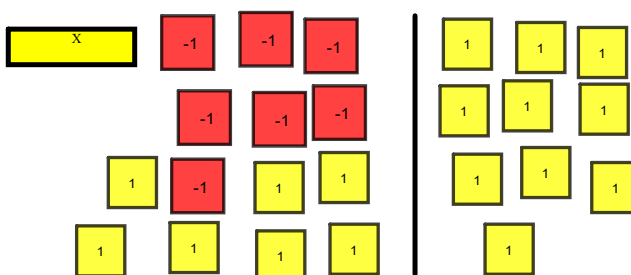
$x = 8$



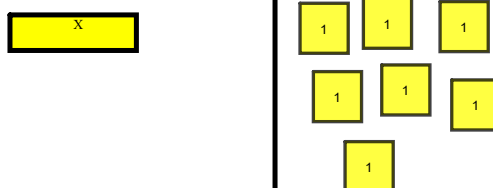
e)  $x - 7 = 3$



$x - 7 + 7 = 3 + 7$



$x = 10$



$$\begin{aligned} \text{b) } 4+x &= 9 \\ 4+x-4 &= 9-4 \\ x &= 5 \end{aligned}$$

$$\begin{aligned} \text{c) } 13 &= x+8 \\ 13-8 &= x+8-8 \\ 5 &= x \end{aligned}$$

$$\begin{aligned} \text{f) } 11 &= x-2 \\ 11+2 &= x-2+2 \\ 13 &= x \end{aligned}$$

2- orally

$$\begin{aligned} 2 \text{ a) } p - 7 &= 9 \\ p &= 16 \end{aligned}$$

$$\begin{aligned} \text{b) } q + 8 &= 27 \\ q &= 19 \end{aligned}$$

$$\begin{aligned} \text{c) } 3 &= k - 6 \\ k &= 9 \end{aligned}$$

$$\begin{aligned} \text{d) } s - 7 &= -3 \\ (s) + (-7) &= -3 \end{aligned}$$

$$s = 4$$

$$s - 7 = -3$$

$$\begin{aligned} \text{e) } x + 3 &= -4 \\ x + 3 &= -4 - 3 \\ x &= -7 \end{aligned}$$

$$\begin{aligned} \text{f) } x + 5 &= 2 \\ x &= -3 \end{aligned}$$

3a)  $x =$  the number

$$x - 6 = 7$$

$$x - 6 + 6 = 7 + 6$$

$$x = 13$$

The number is 13.

b)  $x =$  the number

$$x - 3 = -5$$

$$x - 3 + 3 = -5 + 3$$

$$x = -2$$

The number is -2.

4.  $x =$  the number of student who stayed

$$x + 11 = 27$$

$$x + 11 - 11 = 27 - 11$$

$$x = 16$$

16 students stayed 2 hours.

5.  $t$  = original temperature

a)  $t - 6 = -10$

$$t - 6 + 6 = -10 + 6$$
$$t = -4$$

b)  $t + 7 = +2$

$$t + 7 - 7 = 2 - 7$$
$$t = -5$$

c)  $t - 8 = -3$

$$t - 8 + 8 = -3 + 8$$
$$t = 5$$



### Solving Equations using Algebra

When we solve equations using algebra, the first thing we want to do is to "isolate" the variable. That is we want to get the variable by itself on one side of the equal sign.

To isolate the variable and solve the equation, we use opposite operations:

Addition	opposite	●	→	Subtraction
Subtraction	opposite	●	→	Addition
Multiplication	opposite	●	→	Division
Division	opposite	●	→	Multiplication

Remember whatever you do to one side of the equation you MUST do the other side.

Examples:

$$2x + 4 = 20$$

$$2x + 4 - 4 = 20 - 4$$

$$2x = 16$$

$\div 2$                    $\div 2$

$$x = 8$$



## Your Turn

Solve using algebra

a)  $4x - 3 = 13$

$$4x - 3 + 3 = 13 + 3$$

$$4x = 16$$
$$\div 4 \quad \div 4$$

$$x = 4$$

b)  $3x + 8 = -1$

$$3x + 8 - 8 = -1 - 8$$

$$3x = -9$$
$$\div 3 \quad \div 3$$

$$x = -3$$

## Your Turn

Solve using algebra

a)  $4x - 3 = 13$

$$\begin{aligned} 4x - 3 &= 13 \\ 4x - 3 + 3 &= 13 + 3 \\ 4x &= 16 \\ \frac{4x}{4} &= \frac{16}{4} \\ x &= 4 \end{aligned}$$

LS verify      RS

$$\begin{array}{r} 4x - 3 \\ 4 \times 4 - 3 \\ 16 - 3 \\ 13 \end{array} \qquad \begin{array}{r} 13 \\ 13 \end{array}$$

b)  $3x + 8 = -1$

$$\begin{aligned} 3x + 8 &= -1 \\ 3x + 8 - 8 &= -1 - 8 \\ 3x &= -9 \\ \frac{3x}{3} &= \frac{-9}{3} \\ x &= -3 \end{aligned}$$

LS verify      RS

$$\begin{array}{r} 3x + 8 \\ 3 \times -3 + 8 \\ -9 + 8 \\ -1 \end{array} \qquad \begin{array}{r} -1 \\ -1 \end{array}$$

# Class / Homework

Page 236  
#1 to #4

don't draw just use  
algebra to solve all

Page 238

# 1 to #3

1a) let  $x \equiv$  distance 2<sup>nd</sup>  
day

$$x + 5 = 12$$

$$x + 5 - 5 = 12 - 5$$

She hiked  $x = 7$   
7km on 2<sup>nd</sup> day.