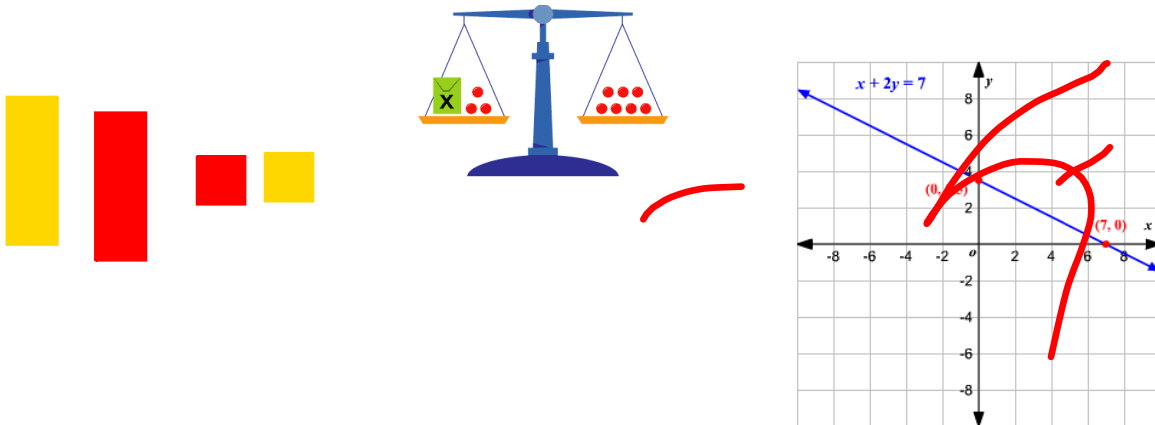


## Unit 6

$$3x + 7 = 19$$





# Linear Equations and Graphing



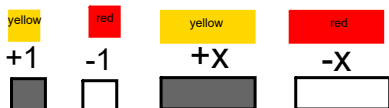
### Section 6.1

## Solving Equations using Algebra Tiles

Remember:

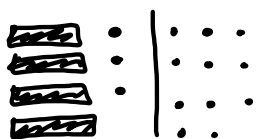
 +1	$+x$  shaded	any positive variable ( $x, n, \dots$ )
 -1	 UNshaded	any negative variable ( $-x, -n, \dots$ )
	$-x$	

Also remember that a positive and a negative together gives 0.

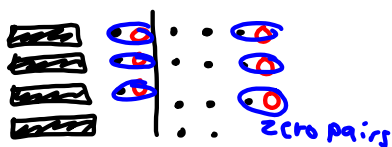


Use algebra tiles to solve the equations. Verify the solutions.

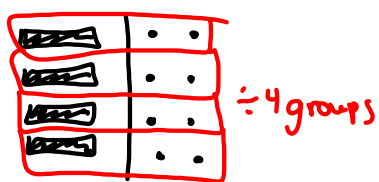
1.  $4x + 3 = 11$



$$4x + 3 = 11$$



$$4x + \cancel{3} = 11 - 3$$



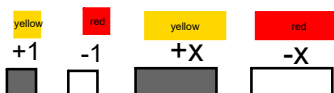
$$4x = 8$$



$$4x = 8$$

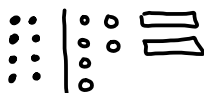
$$\div 4 \quad \div 4$$

$$x = 2$$

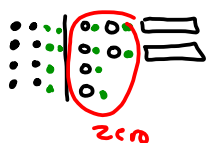


Use algebra tiles to solve the equations. Verify the solutions.

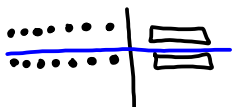
2.  $8 = -6 - 2x$



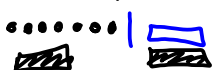
$$8 = -6 - 2x$$



$$14 = -2x$$



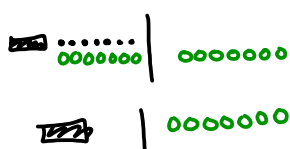
$$14 = -2x$$



$$7 = -x + x$$



$$x + 7 = 0$$



$$x + 7 = 0$$

$$x = -7$$

$$-x = +3$$

$$x = -3$$



$$-x = -7$$

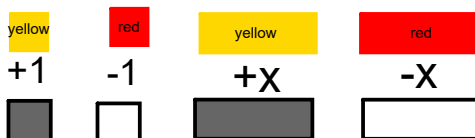
$$x = +7$$

$$\begin{array}{l} -3x = 21 \\ \div(-3) \quad \div(-3) \end{array}$$

$$x = -7$$

$$\begin{array}{l} 5x = 10 \\ \div 5 \quad \div 5 \end{array}$$

$$\boxed{x = 2}$$



Use algebra tiles to solve the equations. Verify the solutions.

3.  $3x - 1 = 2$

$3x - 1 = 2$

~~$3x - 1 = 2$~~   $\xrightarrow{+1}$   $3x = 3$

$\div 3 \quad \div 3$

$x = 1$

4.  $4x + 1 = 9$

$4x + 1 = 9$

~~$4x + 1 = 9$~~   $\xrightarrow{-1}$   $4x = 8$

$\div 4 \quad \div 4$

$x = 2$

Jodee is a contestant in the spell-a-thon at her school. A contestant receives 3 points for every word spelled correctly. Because of a technical penalty, Jodee loses 5 points. She now has 19 points. How many words has Jodee spelled correctly?

Use tiles

$3x - 5 = 19$

~~$3x - 5 = 19$~~   $\xrightarrow{+5}$   $3x = 24$

$\div 3 \quad \div 3$

$x = 8$

Jodee spelled 8 words correctly.



+ shaded  
- unshaded

# Class/Homework

Page 324

model 5a, d use algebra for b, c  
 #5, #6, #7 → Solve with algebra

↓ model 6a the algebra b, c, d  
 model #5 with pictures

use algebra for #6 & #7

Model 5a, d  
 6a

Algebra 5bc  
 6bcd  
 7a

**Check**

3. Describe the operation you would perform to isolate the variable in each equation.

- a)  $a - 3 = 6$
- b)  $4 + b = 11$
- c)  $5c = 30$
- d)  $\frac{d}{7} = 3$
- e)  $e + 8 = 17$
- f)  $-5 + f = 3$
- g)  $45 = 3g$
- h)  $8 = \frac{h}{6}$

4. Solve each equation in question 3. Verify the solution each time.

3a) addition

4.  $a - 3 = 6$   
 $a - 3 + 3 = 6 + 3$   
 $a = 9$

Check RS  
 $a - 3$   
 $9 - 3$   
 $6$

a)  $4 + b = 11$   
 $b + 4 = 11$   
 $b + 4 - 4 = 11 - 4$   
 $b = 7$

Check RS  
 $4 + b$   
 $4 + 7$   
 $11$

c)  $5c = 30$   
 $\frac{5c}{5} = \frac{30}{5}$   
 $c = 6$

Check RS  
 $5c$   
 $5 \times 6$   
 $30$

d)  $\frac{d}{7} = 3$   
 $\frac{d}{7} \times 7 = 3 \times 7$   
 $d = 21$

Check RS  
 $\frac{d}{7}$   
 $\frac{21}{7}$   
 $3$

e)  $e + 8 = 17$   
 $e + 8 - 8 = 17 - 8$   
 $e = 9$

$\begin{array}{r} \text{LS} \\ e + 8 \\ 9 + 8 \\ \hline 17 \end{array}$        $\begin{array}{r} \text{RS} \\ 17 \\ \hline 9 \end{array}$

f)  $-5 + f = 3$   
 $-5 + f + 5 = 3 + 5$   
 $f = 8$

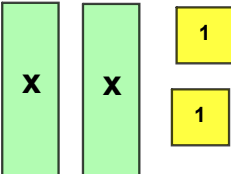
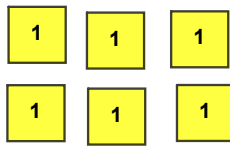

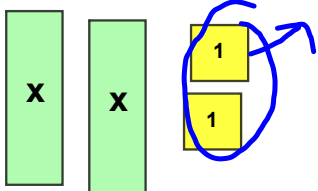
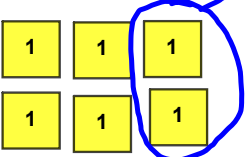

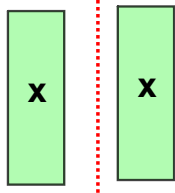
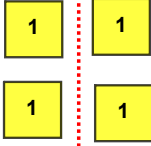






$\begin{array}{r} \text{LS} \\ -5 + f \\ -5 + 8 \\ \hline 3 \end{array}$        $\begin{array}{r} \text{RS} \\ 3 \\ \hline 8 \end{array}$

g)  $45 = 3g$   
 $\frac{45}{3} = \frac{3g}{3}$   
 $15 = g$

$\begin{array}{r} \text{LS} \\ 45 \\ \hline 3 \end{array}$        $\begin{array}{r} \text{RS} \\ 3g \\ \hline 3 \times 15 \\ \hline 45 \end{array}$

h)  $8 = \frac{h}{6}$   
 $8 \times 6 = \frac{h}{6} \times 6$   
 $48 = h$

$\begin{array}{r} \text{LS} \\ 8 \\ \hline 6 \end{array}$        $\begin{array}{r} \text{RS} \\ h \\ \hline 6 \\ \hline 48 \end{array}$

		$2x + 2 = 6$	
		$2x + 2 - 2 = 6 - 2$	
		$2x = 4$	
		$\frac{2x}{2} = \frac{4}{2}$	
		$x = 2$	

$3x - 1 = 2$   
 $3x - 1 + 1 = 2 + 1$   
 $3x = 3$   
 $\frac{3x}{3} = \frac{3}{3}$   
 $x = 1$

$4x + 1 = 9$   
 $4x + 1 - 1 = 9 - 1$   
 $4x = 8$   
 $\frac{4x}{4} = \frac{8}{4}$   
 $x = 2$

Discuss pages 319 - 323

Homework Read pages 319 -323  
pg. 324 # 1-7