



Concept: Solving Two-Step Equations

Name: _____

COMPUTER COMPONENT

Instructions: Select the computer program *Understanding Equations* (Neufeld)
Follow the instructions to the Main Menu.
Select *Solving One-Step Equations* from the Main Menu.



Work through all sections of this topic **in order**:

- *Our Problem*
- *Concepts – Examples with Tiles*
- *Concepts – Examples without tiles*
- *Practice Questions*

Additional Required Materials: *Pencil Crayons (red and blue)*







As you work through the computer exercises, make your notes in the **NOTES** section of this page.

When you reach the end of the section *Practice Questions* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

NOTES:

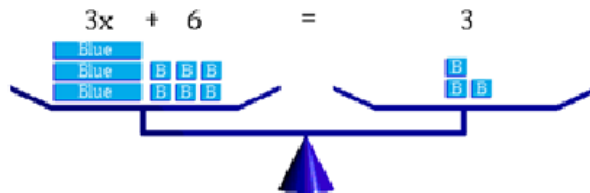
Remember:

Tile	Represents
 Blue Tile	
 Red Tile	
 + 	

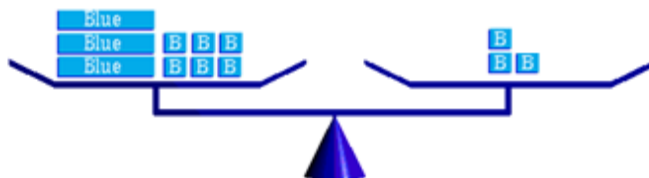
Solve the following examples with tiles as you fill in the blanks and keep the balance balanced:

1.

Step 1 $3x + 6 = 3$



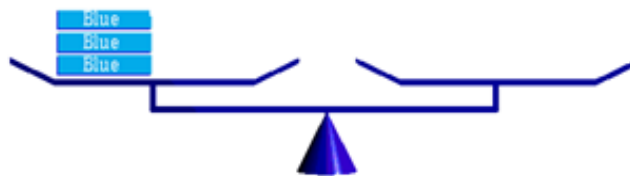
Step 2 $3x + 6 = 3$



Isolate the x tile
Hint: Draw the appropriate number of red tiles (-1) over the blue tiles (+1).

Remember to keep the balance balanced.

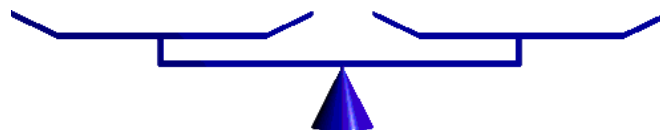
Simplify $3x =$ _____



Simplify

Remember to keep the balance balanced.

Step 3 $\frac{3x}{3} =$ _____



$\therefore x =$ _____

Rearrange each side into 3 equal groups.
divide each size by 3.

Of the four examples with tiles, pick the one that you felt was the most difficult and model the steps:

Circle the step(s) that was (were) the most difficult and explain why it was (they were) complicated.



Without Tiles

Fill in the blanks

Step 1: Rewrite the _____

Step 2: _____ the _____

(Hint: Think of balancing the balance)

➤ Perform the _____ operation on _____
_____ of the equation.

➤ Determine which operation; (____), (____), (____), or (____)
should be applied to _____ sides.

Step 3: _____

Step 4: _____ the _____

(Hint: Keep the balance balanced)

➤ Perform the _____ operation on _____
_____ of the equation.

➤ Determine which operation; (____) or (____)
should be applied to _____ sides.

Step 5: _____

Step 6: _____



Example:Solve for x (fill in the blanks)

Step 1: $7x + 9 = 51$

Step 2: $7x + 9 \underline{\hspace{1cm}} = 51 \underline{\hspace{1cm}}$

Step 3: Simplify $7x = \underline{\hspace{1cm}}$

Step 4: $\frac{7x}{\underline{\hspace{1cm}}} = \underline{\hspace{1cm}}$

Step 5: Simplify $x = \underline{\hspace{1cm}}$

Step 6: Check

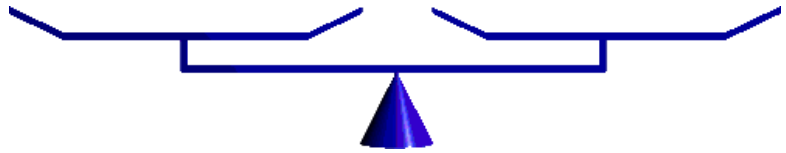
Left Side	=	$7x + 9$
	=	$7(\underline{\hspace{1cm}}) + 9$
	=	$\underline{\hspace{1cm}} + 9$
	=	$\underline{\hspace{1cm}}$
Right Side	=	$\underline{\hspace{1cm}}$

L.S. = R.S., the solution $x = \underline{\hspace{1cm}}$ is correct.

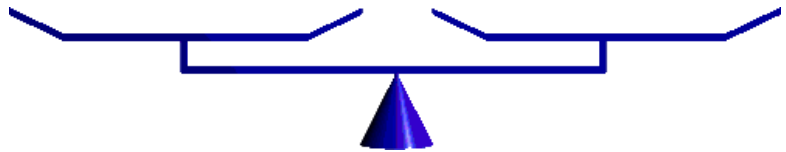
OFF COMPUTER EXERCISES

1. Given the equation $3x - 4 = 8$

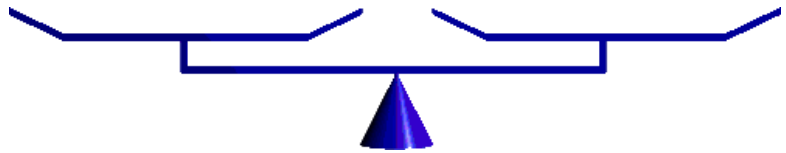
(a) Represent the equation on the balance by using tiles.



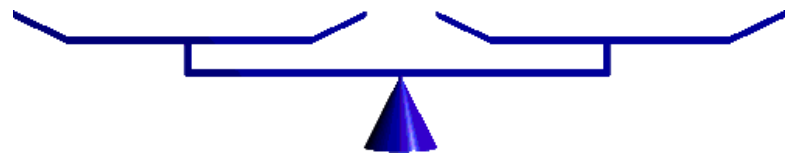
(b) Isolate the x tile by manipulating the tiles.



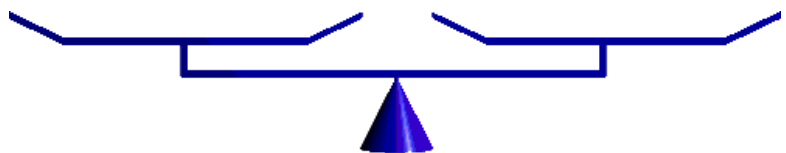
(c) Write the resulting equation and simplify it.



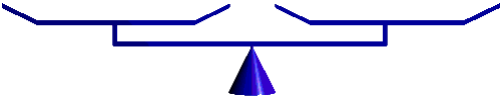
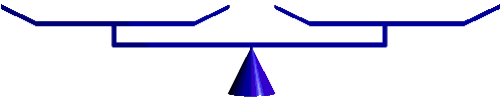
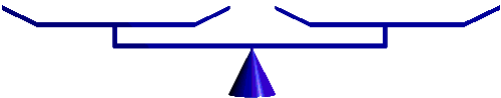
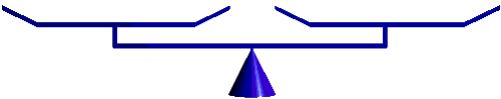
(d) Isolate the x tile by rearranging the tiles and perform the appropriate operation.



(e) Write the resulting equation and simplify it.



2. Solve each equation $14 = 3x + 2$ in two ways.

With the Balance	Without the Balance
	<p>Write the equation</p> <p>_____</p>
	<p>Subtract 2 from both sides</p> <p>_____</p>
	<p>Simplify</p> <p>_____</p>
	<p>Isolate x and divide both sides by 3</p> <p>_____</p>
	<p>Simplify</p> <p>_____</p> <p>Check:</p>

(a) Which method did you prefer? Why?

3. Solve each equation. *Be sure to write out all of your steps and to check each answer.*

(a) $2x - 5 = 7$

(b) $-5y + 3 = 8$

(c) $3z - 7 = 11$

(d) $25 = 2m + 5$

(e) $3 = 2a + 7$

(f) $0.9x - 0.4 = 3.2$

(g) $\frac{1}{3}r - 4 = 1$

(h) $\frac{1}{4}m + 2 = 5$

(i) $0.9x = 9$

(j) $7p - 1 = 34$