Concept: Solving Two-Step Equations

Name:

COMPUTER COMPONENT

Instructions: In UMATH X follow the **Content Menu** path:

Equations > **Solving Two-Step Equations**

Work through all Sub Lessons of the following Lessons **in order**:

- *Our Problem*
- *Examples With Tiles*
- *Examples Without tiles*

Additional Required Materials: Pencil Crayons (red and blue)

As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

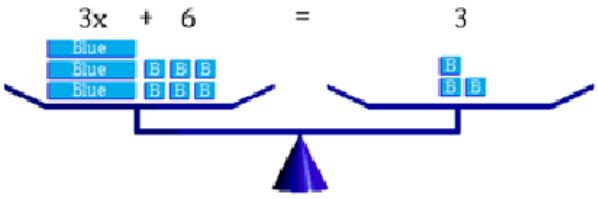
NOTES:

Remember:

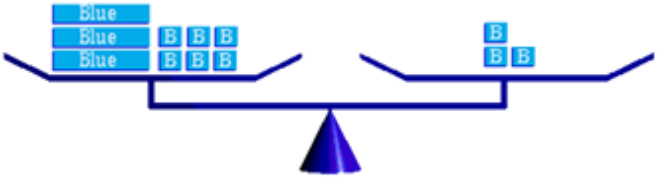
Tile	Represents
Blue Tile	
Red Tile	
+	

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

Step 1 $3x + 6 = 3$



Step 2 $3x + 6 = 3$

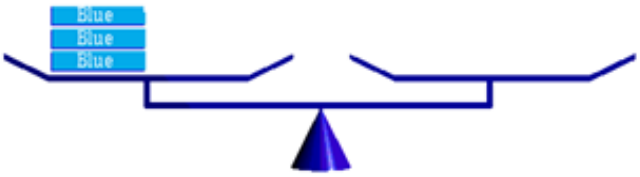


Isolate the x tile
Hint: Draw the appropriate number of red tiles (-1) over the blue tiles (+1).

Remember to keep the balance balanced.

Simplify

$3x =$ ____

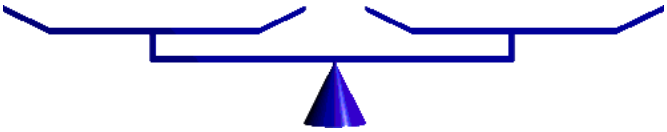


Simplify

Remember to keep the balance balanced.

Step 3

$\frac{3x}{\quad} = $ ____



∴ $x =$ ____

Rearrange each side into 3 equal groups.
divide *each side 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: $7x + 9 \_\_ = 51 \_\_$

Step 3: Simplify $7x = \_\_$

Step 4: $\frac{7x}{\_\_} = \frac{}{\_\_}$

Step 5: Simplify $x = \_\_$

Step 6: Check

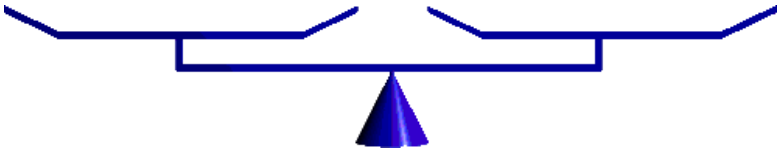
Left Side	=	7x + 9
	=	7 (___) + 9
	=	___ + 9
	=	___
Right Side	=	___

L.S. = R.S., the solution x = ___ is correct.

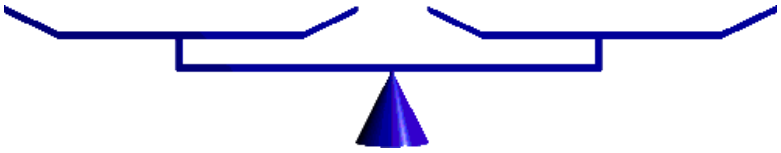
OFF COMPUTER EXERCISES

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

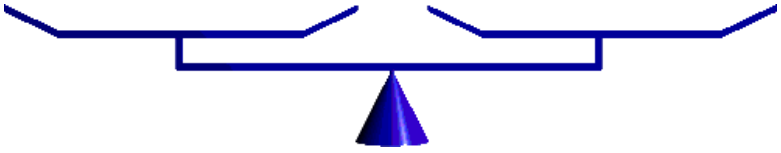
   (a) Represent the equation on the balance by using tiles.



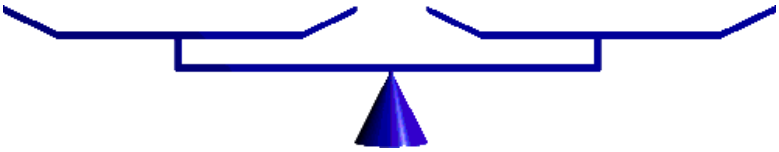
   (b) Isolate the x tile by manipulating the tiles.



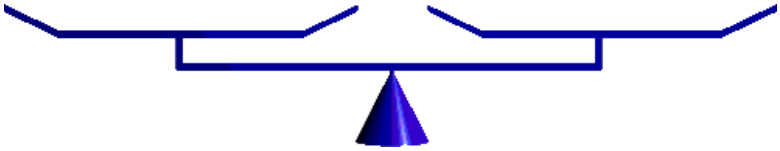
   (c) Write the resulting equation and simplify it.



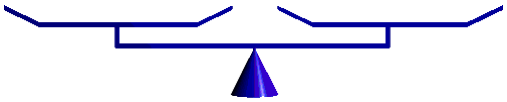
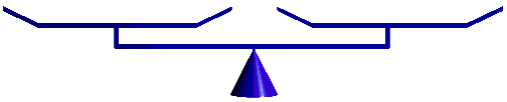
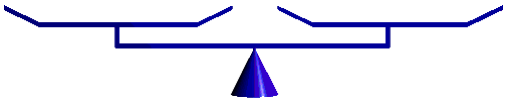
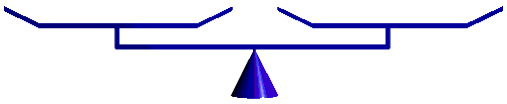
(d) Isolate the x tile by rearranging the tiles and perform the appropriate operation.



(e) Write the resulting equation and simplify it.



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

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

(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) $7p - 1 = 34$