

# Math8 Lesson 10.3

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10.3

Date: \_\_\_\_\_

### 10.3 Notes: Solving Two Step Equations

What steps were done to "x" to turn it into " ~~$\frac{x}{5} + 2$~~ "?

<sup>x</sup>  
divide by 5  
add 2

What steps do you think you would need to do to turn

~~$\frac{x}{5} + 2$~~  back into an x?

~~$\frac{x}{5} + 2$~~

Practice:

What steps are needed to turn each of the following back into x?

$x \rightarrow \frac{x}{3} + 7$   
divide 3  
add 7

$\frac{x}{-8} - 3$   
divide by -8  
subtract 3

### Solving Two Step Equations

Follow the reverse order of operations to isolate the variable on one side

Solving an equation means:

find out all possible "x" values to make the equation true.

$$\begin{array}{rcl} x & = & 100 \\ \div 5 \swarrow & & \searrow \div 5 \\ \frac{x}{5} & = & 20 \\ + 2 \swarrow & & \searrow + 2 \\ \frac{x}{5} + 2 & = & 22 \end{array}$$

What steps were done to turn one line into the next line?

How would you go backwards and turn the last line back into the first line?

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

$$\frac{-x}{3} = 5$$

Examples:

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

~~$$2 \times \frac{x}{2} = 1 \times 2$$~~

$$1x = 2$$

$$x = 2$$

~~$$\frac{-x}{3} = 5$$~~

~~$$+3 \times \frac{-x}{3} = 5 \times -3$$~~

$$x = -15$$

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

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

$$3 \times \frac{x}{3} = 3 \times 3$$

$$x = 9$$

~~$$\frac{x}{2} + 4 = 1$$~~

Coefficient?

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

$$\left(\frac{1}{2}\right)x = -3$$

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

$$x = -6$$

~~$$\frac{x}{5} + 8 = 10$$~~

~~$$\frac{x}{5} + 8 = 10$$~~  
$$-8 \quad -8$$

$$x = 7$$

$$x = 35$$

~~$$\frac{-x}{2} + 6 = -3$$~~

~~$$\frac{-x}{2} + 6 = -3$$~~  
$$-6 \quad -6$$

$$-2 \times \frac{-x}{2} = -9 \times -2$$

$$x = 18$$

The cost for Bobby-Sue to go to the monster truck rally is \$3 less than one third of her dad's adult ticket. The cost of the child ticket is 6 dollars. How much was the adult ticket?

$a = \text{adult ticket}$

$$\frac{1}{3}a - 3 = 6$$

$$+3 \quad +3$$
$$\frac{3}{1} \times \frac{1}{3}a = 9 \times 3$$

$$a = 27$$

Adult ticket was \$27.