

Solving Equations and Solving for a Variable Review

Hint: Get a common denominator

$$\frac{1}{6}x + \frac{2}{3} = \frac{1}{2}x$$

$$\frac{1}{6}x + \frac{4}{6} = \frac{3}{6}x$$

$$-\frac{1}{6}x \quad -\frac{1}{6}x$$

$$\frac{6}{2} \cdot \frac{4}{6} = \frac{6}{2} \cdot \frac{2}{6}x$$

$$2 = x$$

Hint: Combine like terms on each side first.

$$15 - 8x - 2 = 3 + 6x - 26 - 2x$$

$$-8x + 13 = 4x - 23$$

$$+8x \quad +8x$$

$$13 = 12x - 23$$

$$+23 \quad +23$$

$$36 = 12x$$

$$3 = x$$

Know how to solve two different ways!

$$5(x - 3) = 10 + 30x$$

$$5x - 15 = 10 + 30x$$

$$-5x \quad -5x$$

$$-15 = 10 + 25x$$

$$-10 \quad -10$$

$$-25 = 25x$$

$$\frac{-25}{25} = \frac{25x}{25}$$

$$-1 = x$$

Hint: Distribute then combine like terms on each side.

$$7(x - 2) + 20 = 6(x + 1) + 6$$

$$7x - 14 + 20 = 6x + 6 + 6$$

$$7x + 6 = 6x + 12$$

$$-6x \quad -6x$$

$$x + 6 = 12$$

$$-6 \quad -6$$

$$x = 6$$

Hint: Distribute the negative one!

$$3(x - 5) - (x - 5) = 2x - 10$$

$$3x - 15 - x + 5 = 2x - 10$$

$$2x - 10 = 2x - 10$$

$$-2x \quad -2x$$

$$-10 = -10 \text{ true statement.}$$

Hint: Distribute on both sides first!

$$13(2x - 5) = 2(13x - 2)$$

$$26x - 65 = 26x - 4$$

$$-26x \quad -26x$$

$$-65 = -4 \text{ false statement}$$

All Real Numbers or Infinitely Many Solutions

No Solution

Solving Equations Review

Stephen, Jessica, Matthew, and Daniel's ages are consecutive whole numbers. Stephen is the oldest. The sum of their ages is 94. How old is Stephen?

$x \rightarrow$ Daniel
 $x+1 \rightarrow$ Matthew
 $x+2 \rightarrow$ Jessica
 $x+3 \rightarrow$ Stephen

$$\textcircled{x} + \textcircled{x} + 1 + \textcircled{x} + 2 + \textcircled{x} + 3 = 94$$

$$4x + 6 = 94$$

$$\frac{4x}{4} = \frac{88}{4}$$

$$x = 22$$

$22 + 3 = 25$
 Stephen is 25 years old

Anne, Ben, and Nate are doing push-ups. Anne does some, but Ben does 1 more than Anne. Nate does three times as much as Anne. If they do 61 pushups total, how many did Anne do?

a) Define a variable.

b) Set up an equation that describes this situation.

$x =$ how many push ups Anne does
 $x+1 =$ how many push ups Ben does
 $3x =$ how many push ups Nate does

$$\textcircled{x} + \textcircled{x} + 1 + \textcircled{3x} = 61$$

$$5x + 1 = 61$$

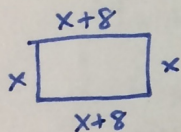
$$5x = 60$$

$$x = 12$$

Anne does 12 push ups

A rectangular garden is fenced on all sides with 256 feet of fencing. The garden is 8 feet longer than it is wide. Find the length and width of the garden.

Draw a picture first!



$x =$ how wide the garden is

$$\textcircled{x} + \textcircled{x} + \textcircled{x} + 8 + \textcircled{x} + 8 = 256$$

$$4x + 16 = 256$$

$$\frac{4x}{4} = \frac{240}{4}$$

$$x = 60$$

Width is 60 ft
 length is 68 ft

One moving company charges \$800 plus \$16 per hour. Another moving company charges \$720 plus \$21 per hour. At what number of hours will the charge by both companies be the same?

$h =$ # of hours

$$800 + 16h = 720 + 21h$$

$$80 + 16h = 21h$$

$$\frac{80}{5} = \frac{5h}{5}$$

$$16 = h$$

At 16 hours the charge will be the same.

Quiz will be similar to this review sheet and old homework

Things you can study to prepare:

- ✓ Any notes from this week
- ✓ Rework missed problems on blue sheet on solving equations (key is on my website)
- ✓ This Review Sheet (key will be on my website)
- ✓ Powerpoints (on website)
- ✓ Extra practice sheet (key is on website)