Review: Solving Equations

Monday, October 26, 2015
10:58 AM

equation:

$$2x + 1 = 7$$

the value 3 makes this equation true

so the solution set for this equation

is $\{3\}$

set of all values of the variable that make the equation true

note: $x^2 = 9$ has solution set $\{-3, 3\}$

how to solve equations:

$$2x + 1 = 7$$

$$2x + 1 - 1 = 7 - 1$$

note: adding / subtracting the same thing from both sides does not change the solution set

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

note: multiplying / dividing by the same non-zero number

$$x = 3 \quad \text{or} \quad \{3\}$$

examples: #20

method #1:

$-5x + 4 = -9 - 4x$

$-5x + 4 + 4x = -9 - 4x + 4x$

$-x + 4 - 4 = -9 - 4$

$-x = -13$

$x = 13$

method #2

$-5x + 4 = -9 - 4x$

$-5x + 4 + 5x = -9 - 4x + 5x$

$9 + 4 = -9 + x + 9$

$13 = x$

$x = 13$

#40 $20\left(\frac{1}{4} + \frac{1}{5}\right) = \left(\frac{x}{2}\right)20$

$5 + 4 = 10x$

$9 = 10x$

$x = \frac{9}{10}$ or 0.9