

Review: Solving Equations

Friday, September 27, 2019 11:34 AM

equation:

$$2x + 1 = 7$$

the value 3 makes the equation true

so the solution for this equation is
 $x = 3$

note: this is also called the solution set and can be written:

$$\{3\}$$

further note: $x^2 = 9$ has solutions $x = 3, -3$
($x = \pm 3$)

$$\{-3, 3\}$$

how to solve equations:

$$2x + 1 = 7$$

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

adding / subtracting the same thing from both sides does not

change the solution

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

multiplying/dividing both sides by the same non-zero number does not change the solution

$$x = 3$$

#20: $-5x + 4 = -9 - 4x$

method #1:

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

$$-x + 4 = -9$$

$$-x = -13$$

$$x = 13$$

method #2:

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

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

$$13 = x$$

$$x = 13$$

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

$$5 + 4 = 10x$$

$$9 = 10x$$

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

#46

$$15 \cdot \left(\frac{x}{3} - \frac{x-5}{5} \right) = 3 \cdot 15$$

$$5x - 3(x-5) = 45$$

$$5x - 3x \quad + \quad 15 = 45$$

$$2x = 30$$

$$x = 15$$