

Linear Equations

$$3x + 5 = 12$$

$$\begin{array}{r} 3x + 5 = 12 \\ -5 \quad -5 \\ \hline 3x = 7 \\ \frac{3x}{3} = \frac{7}{3} \end{array}$$

$$x = \frac{7}{3}$$

$$3\left(\frac{7}{3}\right) + 5 = 12$$

$$7 + 5 = 12$$

$$12 = 12 \checkmark$$

Solving Linear Equations

$$4x + 5 = 7$$

$$\begin{array}{r} 4x + 5 = 7 \\ -5 \quad -5 \\ \hline 4x = 2 \\ \frac{4x}{4} = \frac{2}{4} \end{array}$$

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

$$4\left(\frac{1}{2}\right) + 5 = 7$$

$$2 + 5 = 7$$

$$7 = 7 \checkmark$$

Linear Equations

$$\frac{3}{7}x + 9 = 15$$

$$\frac{3}{7}x - 9 = 15 - 9$$

$$x = 14$$

$$\frac{3}{7}(14) + 9 = 15$$

$$6 + 9 = 15$$

$$15 = 15 \checkmark$$

5 steps to Solve Linear Equation

1) Remove ()'s

2) Combine Like terms

3) Move variables to one side

4) Remove addition + subtraction

5) Remove multiplication and division

ex 2)

$$3(2x - 5) = 15$$

$$6x - 15 = 15$$

$$+15 \quad +15$$

$$\frac{6x}{6} = \frac{30}{6}$$

$$x = 5$$

$$3(2(5) - 5) = 15$$

$$3(10 - 5) = 15$$

$$3(5) = 15$$

$$15 = 15 \checkmark$$

$$7(2x - 3) = 10$$

$$14x - 21 = 10$$

$$+21 \quad +21$$

$$\frac{14x}{14} = \frac{31}{14}$$

$$x = \frac{31}{14}$$

$$3(4x - 3) + 12 = 18$$

$$12x - 9 + 12 = 18$$

$$12x + 3 = 18$$

$$-3 \quad -3$$

$$\frac{12x}{12} = \frac{15}{12}$$

$$x = \frac{5}{4}$$

$$3(4(\frac{5}{4}) - 3) + 12 = 18$$

$$3(5 - 3) + 12 = 18$$

$$3(2) + 12 = 18$$

$$6 + 12 = 18$$

$$18 = 18 \checkmark$$

$$6(x - 3) + 5 = 11$$

$$6x - 18 + 5 = 11$$

$$6x - 13 = 11$$

$$+13 \quad +13$$

$$\frac{6x}{6} = \frac{24}{6}$$

$$x = 4$$

$$6(4 - 3) + 5 = 11$$

$$6(1) + 5 = 11$$

$$6 + 5 = 11$$

$$11 = 11 \checkmark$$

$$4(3x-5) = -2(-x+8) - 6x$$

$$12x - 20 = 2x - 16 - 6x$$

$$12x - 20 = -4x - 16$$

$$\begin{array}{r} +4x \\ \hline \end{array}$$

$$16x - 20 = -16$$

$$\begin{array}{r} +20 \\ \hline \end{array}$$

$$\frac{16x}{16} = \frac{4}{16}$$

$$x = \frac{1}{4}$$

$$6(x+4) - 2x + 7 = 3x - 12$$

$$6x + 24 - 2x + 7 = 3x - 12$$

$$\begin{array}{r} 4x + 31 = 3x - 12 \\ -3x \quad \quad -3x \\ \hline \end{array}$$

$$x + 31 = -12$$

$$\begin{array}{r} -31 \quad -31 \\ \hline \end{array}$$

$$x = -43$$

$$\left(\frac{1}{3}x + \frac{1}{4} = x - \frac{1}{6}\right) 12$$

$$4x + 3 = 12x - 2$$

$$-4x$$

$$-4x$$

$$3 = 8x - 2$$

$$+2$$

$$+2$$

$$5 = 8x$$

$$\frac{5}{8}$$

$$\frac{8}{8}$$

$$\frac{5}{8} = x$$

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