SOLVING LINEAR EQUATIONS

NOTE: AT ANY STEP COMBINE LIKE TERMS AND COMBINE NUMBERS

1. GET RID OF PARENTHESIS
2. GET RID OF FRACTIONS
3. GET EVERYTHING WITH AN X ON ONE SIDE, NUMBERS ON OTHER SIDE
4. DIVIDE BOTH SIDES BY THE NUMBER IN FRONT OF THE X

#1

$$\frac{7x-1}{4} = \frac{3x}{8}$$

$$\cancel{8}^{2}\left(\frac{7x-1}{\cancel{4}_{1}}\right) = \cancel{8}^{1}\left(\frac{3x}{\cancel{8}_{1}}\right)$$

$$2(7x-1) = 1(3x)$$

$$14x - 2 = 3x$$

$$14x - 3x = 2$$

$$11x = 2$$

$$\frac{11x}{11} = \frac{2}{11}$$

$$x = \frac{2}{11}$$

LCM

① $4 = 2 \cdot 2$

$8 = 2 \cdot 2 \cdot 2$

② LCM $= 2 \cdot 2 \cdot 2$

$= 8$

#2

$$\frac{5}{3}x - \frac{1}{5} = \frac{7}{10}$$

$$\cancel{30}^{10}\left(\frac{5}{\cancel{3}_{1}}x\right) - \cancel{30}^{6}\left(\frac{1}{\cancel{5}_{1}}\right) = \cancel{30}^{3}\left(\frac{7}{\cancel{10}_{1}}\right)$$

$$50x - 6 = 21$$

$$50x = 21 + 6$$

$$50x = 27$$

$$\frac{\cancel{50}x}{\cancel{50}} = \frac{27}{50}$$

$$x = \frac{27}{50}$$

LCM

① $3 = 3$

$5 = 5$

$10 = 2 \cdot 5$

② LCM $= 2 \cdot 3 \cdot 5$

$= 30$

#3

$$\frac{2}{5}(10 - x) = \frac{3x}{10}$$

$$\frac{2}{\cancel{5}_{1}}(\cancel{10}^{2}) + \frac{2}{\cancel{5}_{1}}(-x) = \frac{3x}{10}$$

$$4 - \frac{2}{5}x = \frac{3}{10}x$$

$$10(4) - \cancel{10}^{2}\left(\frac{2}{\cancel{5}_{1}}x\right) = \cancel{10}^{1}\left(\frac{3}{\cancel{10}_{1}}x\right)$$

$$40 - 4x = 3x$$

$$40 = 3x + 4x$$

$$40 = 7x$$

$$\frac{40}{7} = \frac{\cancel{7}x}{\cancel{7}}$$

$$\frac{40}{7} = x$$

#4

$$\frac{8x-7}{3} - \frac{x}{4} = \frac{x}{8} - 2$$

$$\cancel{24}^{8}\left(\frac{8x-7}{\cancel{3}_{1}}\right) - \cancel{24}^{6}\left(\frac{x}{\cancel{4}_{1}}\right) = \cancel{24}^{3}\left(\frac{x}{\cancel{8}_{1}}\right) + 24(-2)$$

$$8(8x-7) - 6x = 3x + 24(-2)$$

$$64x - 56 - 6x = 3x - 48$$

$$58x - 56 = 3x - 48$$

$$58x - 3x = -48 + 56$$

$$55x = 8$$

$$\frac{\cancel{55}x}{\cancel{55}} = \frac{8}{55}$$

$$x = \frac{8}{55}$$

LCM

① $3 = 3$

$4 = 2 \cdot 2$

$8 = 2 \cdot 2 \cdot 2$

② LCM $= 2 \cdot 2 \cdot 2 \cdot 3$

$= 24$