Solving Linear Equations in One Variable

Example

$$\frac{4x-3}{3}-\frac{3x-1}{4}=\frac{5x-3}{6}+\frac{2x}{3}-3$$

LCD = 12

1. Clear all fractions
   Multiply both sides (each term) by the **LCD**.

$$12\left[\frac{4x-3}{3}-\frac{3x-1}{4}\right]=12\left[\frac{5x-3}{6}+\frac{2x}{3}-3\right]$$

$$^{4}\cancel{12}\left(\frac{4x-3}{\cancel{3}}\right)-^{3}\cancel{12}\left(\frac{3x-1}{\cancel{4}}\right)=^{2}\cancel{12}\left(\frac{5x-3}{\cancel{6}}\right)+^{4}\cancel{12}\left(\frac{2x}{\cancel{3}}\right)-12(3)$$

$$4(4x-3)-3(3x-1)=2(5x-3)+4(2x)-12(3)$$

2. Remove all parentheses ( ).

$$4(4x-3)-3(3x-1)=2(5x-3)+4(2x)-12(3)$$

$$16x-12-9x+3=10x-6+8x-36$$

3. Combine like terms on <u>each</u> side.

$$16x-12-9x+3=10x-6+8x-36$$

$$16x-9x-12+3=10x+8x-6-36$$

$$7x-9=18x-42$$

4. Clear X term from the right
   by subtracting it from both sides.

$$7x-9=18x-42$$

$$\underline{-18x} \quad \underline{-18x}$$

$$-11x-9=-42$$

5. Clear number term from the left
   by subtracting it from both sides.

$$-11x-9=-42$$

$$\underline{+9} \quad \underline{+9}$$

$$-11x=-33$$

6. Divide both sides by coefficient
   of X.

$$\frac{-11x}{-11}=\frac{-33}{-11}$$

x = 3