

$$4. \quad 3x^2 - 11x = -10$$

$$\quad \quad \quad +10 \quad +10$$

$$3x^2 - 11x + 10 = 0$$

$$(3x^2 - 6x)(-5x + 10) = 0$$

$$3x(x-2) - 5(x-2) = 0$$

$$(x-2)(3x-5) = 0$$

$$x-2=0 \quad 3x-5=0$$

$$x=2 \quad \quad \quad +5 \quad +5$$

$$\frac{3x}{3} = \frac{5}{3}$$

$$x = 5/3$$

$$\boxed{x=2 \quad x=5/3}$$

$$3 * 10 = 30$$

$$-1, -30$$

$$-2, -15$$

$$-3, -10$$

$$\boxed{-5, -6}$$

$$5. \quad 4x^2 - 4x - 15 = 0$$

$$(4x^2 + 6x)(-10x - 15) = 0$$

$$2x(2x+3) - 5(2x+3) = 0$$

$$(2x+3)(2x-5) = 0$$

$$2x+3=0$$

$$2x-5=0$$

$$-3 \quad -3$$

$$+5 \quad +5$$

$$\frac{2x}{2} = \frac{-3}{2}$$

$$\frac{2x}{2} = \frac{5}{2}$$

$$x = -3/2$$

$$x = 5/2$$

$$\boxed{x = -3/2 \quad x = 5/2}$$

$$4 * -15 = -60$$

$$\boxed{6, -10}$$

Solve by Factoring

11-14-18

Factor: $x^2 + 4x + 3 = 0$
 $(x+1)(x+3) = 0$ (step #2)

Zero-Product Property

If $(a)(b) = 0$, then $a = 0$ or $b = 0$.

$$x + 1 = 0 \quad \text{OR} \quad x + 3 = 0 \quad (\text{step \#3})$$

$$\begin{array}{cc} -1 & -1 \\ x = -1 & \end{array} \quad \begin{array}{cc} -3 & -3 \\ x = -3 & \end{array}$$

$$\boxed{x = -1 \quad x = -3} \leftarrow \text{solutions (step \#4)}$$

Steps:

1. make sure the equation equals zero.
2. factor
3. Set each factor equal to zero
4. solve both equations for x

Examples:

1. $x^2 - 8x - 48 = 0$
 $(x+4)(x-12) = 0$
 $x+4=0 \quad x-12=0$
 $\boxed{x = -4 \quad x = 12}$

2. $x^2 + x = 42$
 $-42 \quad -42$

$$x^2 + x - 42 = 0$$
$$(x+7)(x-6) = 0$$
$$x+7=0 \quad x-6=0$$
$$\boxed{x = -7 \quad x = 6}$$

3. $2x^2 + 8x - 64 = 0$ GCF = 2

$$2(x^2 + 4x - 32) = 0$$

$$2(x+8)(x-4) = 0$$

$$x+8=0 \quad x-4=0$$

$$\boxed{x = -8 \quad x = 4}$$

ignore if
just a #