

$$(0)^2 + 4(0)$$

$$0 + 0$$

$$0$$

$$(-4)^2 + 4(-4)$$

$$16 - 16$$

$$0$$

$$a \cdot b = 0$$

either a is zero
or b is zero

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

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

$$+5 +5$$

$$-x = 5$$

$$x = -5$$

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

2. Solve by factoring

a. $0 = x^2 + 4x$

$$0 = x(x+4)$$

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

b. $0 = 3x^2 + 10x$

$$0 = x(3x+10)$$

$$x = 0 \quad 3x + 10 = 0$$

c. $-x^2 - 5x = 0$

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

$$-x = 0 \quad x + 5 = 0$$

d. $-2x^2 + 6x = 0$

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

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

e. $x^2 - 7x + 10 = 0$

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

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

f. $x^2 + 12x + 32 = 0$

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

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

g. $\frac{2x^2}{2} - \frac{18x}{2} - \frac{72}{2} = \frac{0}{2}$

$$x^2 - 9x - 36 = 0$$

$$(x-12)(x+3) = 0$$

h. $x^2 + 5x = 6$

$$x^2 + 5x - 6 = 0$$

$$(x+6)(x-1) = 0$$

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

$$-4 -4$$

$$x = -4$$

$$x = 0$$

$$3x + 10 = 0$$

$$-10 -10$$

$$x = \frac{-10}{3}$$

$$= -3.\bar{3}$$

$$\frac{3x}{3} = \frac{-10}{3}$$

$$x = 0$$

$$x + 5 = 0$$

$$-5 -5$$

$$x = -5$$

$$\frac{-2x}{-2} = \frac{0}{-2}$$

$$x = 0$$

$$x - 3 = 0$$

$$x = 3$$

$$x - 5 = 0$$

$$x = 5$$

$$x - 2 = 0$$

$$x = 2$$

$$x + 4 = 0$$

$$-4 -4$$

$$x = -4$$

$$x + 8 = 0$$

$$-8 -8$$

$$x = -8$$

$$x - 12 = 0$$

$$+12 +12$$

$$x = 12$$

$$x + 3 = 0$$

$$-3 -3$$

$$x = -3$$

$$x + 6 = 0$$

$$-6 -6$$

$$x = -6$$

$$x - 1 = 0$$

$$+1 +1$$

$$x = 1$$