

6.9 Solving Quadratic Equations  
 Calculate the x-intercepts of a graph.  
 Solve the following equations

$9x^2 = 16$       $4a^2 - 6 = 10$

\* make your eqn = 0

$9x^2 - 16 = 0$       $4a^2 - 16 = 0$

Factor our eqn

$(3x+4)(3x-4) = 0$       $(2a-4)(2a+4) = 0$

Equate each factor to 0

Solve for x

$3x+4 = 0$       $3x-4 = 0$

$3x = -4$       $3x = 4$

$x = -\frac{4}{3}$       $x = \frac{4}{3}$

$2a-4 = 0$       $2a+4 = 0$

$2a = 4$       $2a = -4$

$a = 2$       $a = -2$

$x^2 + 12x + 36 = 0$

$\frac{6}{6} \times 36$       $\frac{6}{1}$       $\frac{6}{1}$

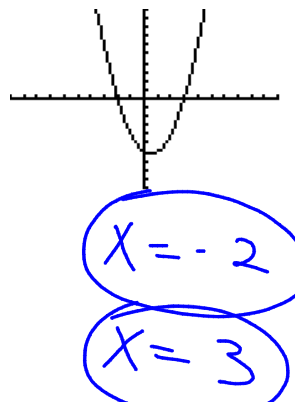
$(x+6)(x+6) = 0$

$x+6 = 0$       $x+6 = 0$

$x = -6$       $x = -6$

Nov 23-2:49 PM

Solve  $x^2 - x - 6 = 0$  using your graphing calculator



x-intercepts  
 this is the same as finding the roots and the zeroes.

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

Nov 23-2:53 PM

The height "h" metres of an arrow shot upward is given by the formula

$$h = 25t - 5t^2$$

where "t" is the time in seconds after the arrow leaves the bow. How long after being shot will the arrow reach a height of 20 m?

$$+20 = 25t - 5t^2$$

$$5t^2 - 25t + 20 = 0$$

$$5(t^2 - 5t + 4) = 0$$

-4	-4	-1
-1	1	1

$\times 4$

$$5(t-4)(t-1) = 0$$

$$t-4=0 \quad t-1=0$$

$$t=4 \quad t=1$$

The arrow reaches a height of 20 m at 1 sec and 4 sec.

Nov 23-2:54 PM

Two numbers differ by 2. The difference of their squares is 44. what are the numbers?

#1:  $x \rightarrow x^2$

#2:  $x-2 \rightarrow (x-2)^2$

$$x^2 - (x-2)^2 = 44$$

$$x^2 - [(x-2)(x-2)] = 44$$

$$x^2 - [x^2 - 2x - 2x + 4] = 44$$

$$x^2 - [x^2 - 4x + 4] = 44$$

$$x^2 - x^2 + 4x - 4 = 44$$

$$4x - 4 = 44 + 4$$

$$4x = 48$$

$$\frac{4x}{4} = \frac{48}{4}$$

$$x = 12$$

The two #'s are 12 and 10.

Nov 23-2:56 PM

**Assignment:**

**Pg. 384**

**1, 2, 3 odds**

**4, 5, 10 and 12**

Apr 25-10:44 AM