

## 9.2

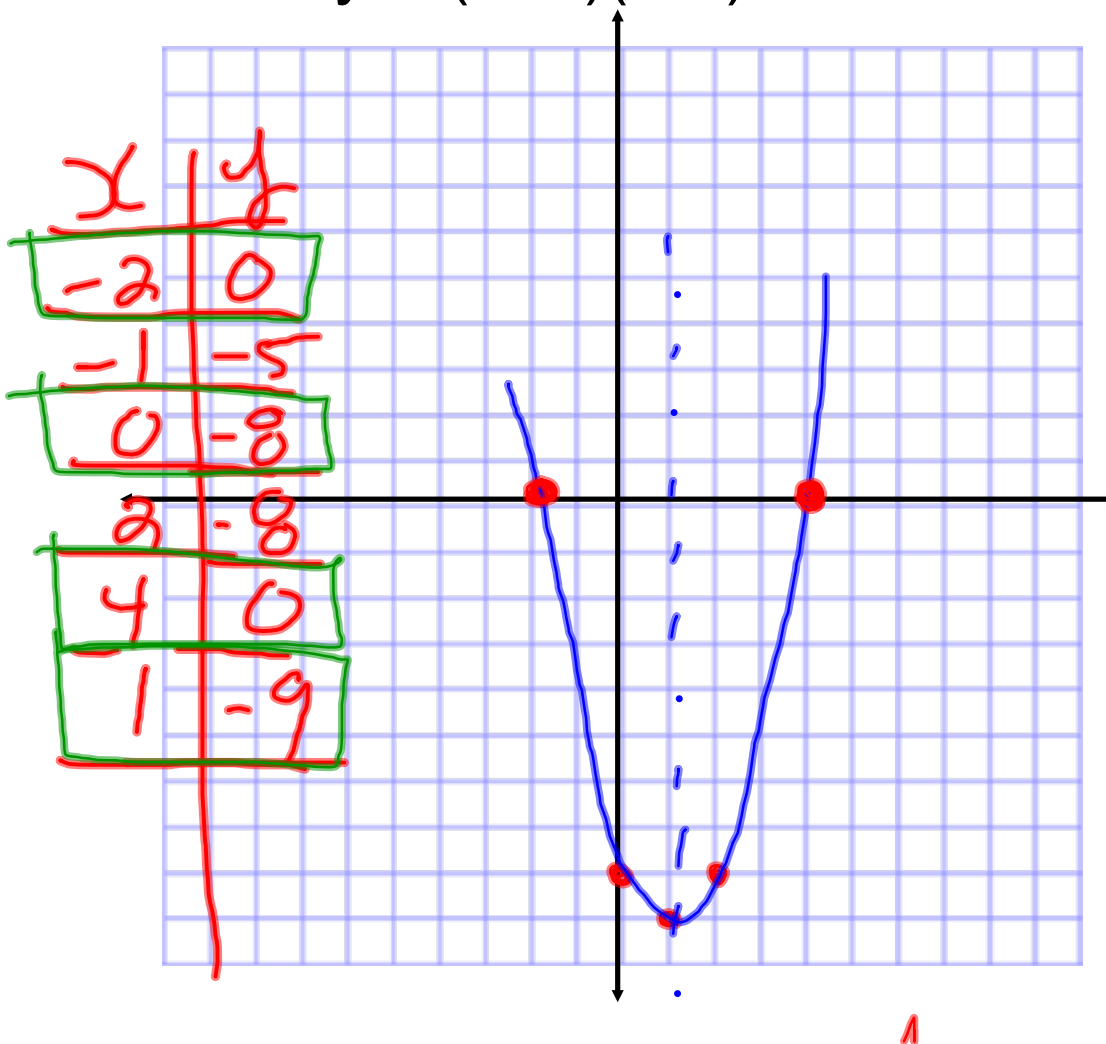
Solving Quadratic Equations  
by Finding Square Roots

$$\begin{array}{rcl} x^2 - 10 & = & -3 \\ +10 & & +10 \\ \hline \sqrt{x^2} & = & \sqrt{7} \\ \boxed{x = \pm\sqrt{7}} \end{array}$$

## 9.3

## Graphs of Quadratic Equations

$$y = (x+2)(x-4)$$



9.4

$$x = \frac{7 \pm \sqrt{49 - 4(4)(3)}}{2(4)}$$

The Quadratic Formula

$$= \frac{7 \pm \sqrt{1}}{8}$$

$$\frac{7+1}{8} = 1$$

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

The Quadratic Formula

The solutions of the quadratic equation  $ax^2 + bx + c = 0$  are

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$4x^2 - 7x = -3$$

$$a = 4$$

$$b = -7$$

$$c = 3$$

## 9.5

Problem Solving Using  
the Discriminant

## The Number of Solutions of a Quadratic Equation

Consider the quadratic equation  $ax^2 + bx + c = 0$ .



1. If  $b^2 - 4ac$  is positive, then the equation has two solutions.



2. If  $b^2 - 4ac$  is zero, then the equation has one solution.

3. If  $b^2 - 4ac$  is negative, then the equation has no solution.



## 10.6

Solving Quadratic Equations  
by Factoring

Z.P.P.

$$ab = 0$$
$$\swarrow \quad \searrow$$
$$a = 0 \quad b = 0$$

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

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

$$x = 3$$

$$x = 2$$

## 10.7

Solving Quadratic Equations  
by Completing the Square

$$x^2 + 10x - 4 = 0$$

$$\text{APE} + 4 \Rightarrow x^2 + 10x = 4$$

$$\text{APE} + 25 \Rightarrow x^2 + 10x + 25 = 29$$

$$(x+5)^2 = 29$$

$$x+5 = \pm\sqrt{29}$$

$$\Rightarrow \boxed{x = -5 \pm \sqrt{29}}$$

Solve by Completing the Square

$$x^2 + 6x - 1 = 0$$

$$\Rightarrow x^2 + 6x = 1$$

$$\Rightarrow x^2 + 6x + 9 = 10$$

$$(x+3)^2 = 10$$

$$\Rightarrow x+3 = \pm\sqrt{10}$$

$$\Rightarrow \boxed{x = -3 \pm \sqrt{10}}$$

Solve by Completing the Square

$$2x^2 - 16x + 4 = 0$$

$$\Rightarrow x^2 - 8x + 2 = 0$$

$$\Rightarrow x^2 - 8x = -2$$

$$\Rightarrow x^2 - 8x + 16 = 14$$

$$(x-4)^2 = 14$$

$$\Rightarrow x-4 = \pm\sqrt{14}$$

$$\boxed{x = 4 \pm \sqrt{14}}$$



**Homework:**

P. 552 # 1-43 (odds)