Unit 5 Part 2 Review #2 Worksheet
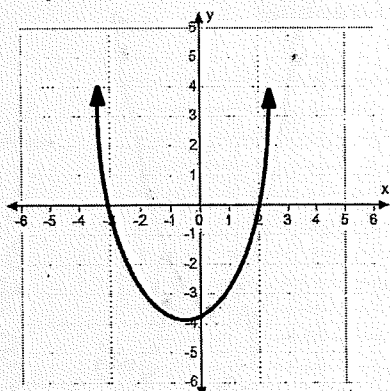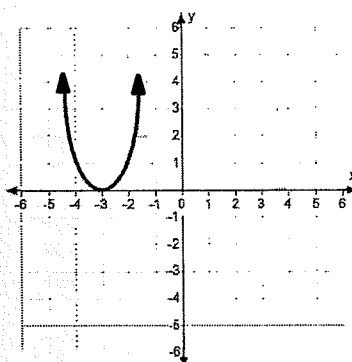
3-Tri Intermediate Algebra A

For 1-3, what are the **solutions (Zeros)** of the given graph?
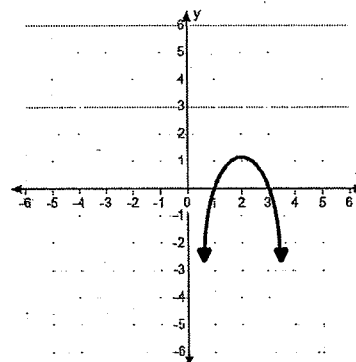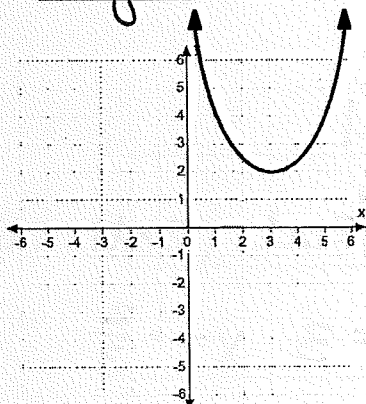
1. $x = -3 \quad x = 2$
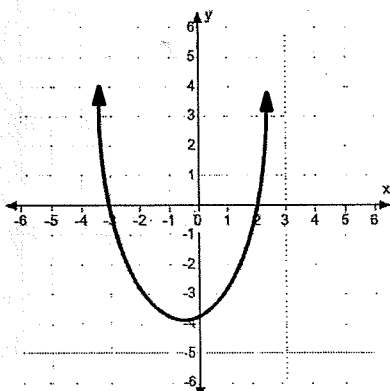

2. $x = -3$

3. $x = 1 \quad x = 3$

For questions 4-6 the graph of a quadratic equation is shown. Tell whether the **discriminant is positive, negative, or zero.**
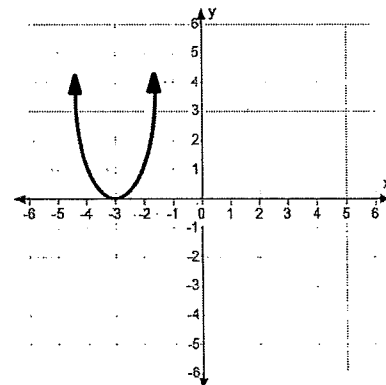
4. negative

5. positive

6. zero

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

7. $3x^2 - 7x - 6 = 0$ $x^2 - 8x = -15$

a) What is the discriminant?   a) ___4___

b) How many and what type of solutions are there?   b) _2 Real (Rational)_

c) Solve this equation by **QF** AND **graphing**.   c) __X = 3   X = 5__

SWITCH

Quadratic Formula

$$x = \frac{-(-8) \pm \sqrt{4}}{2(1)}$$

$$x = \frac{8 \pm 2}{2}$$

$$\frac{8+2}{2} \qquad \frac{8-2}{2}$$

$$\frac{10}{2} = \boxed{5} \qquad \frac{6}{2} = \boxed{3}$$

Graphing
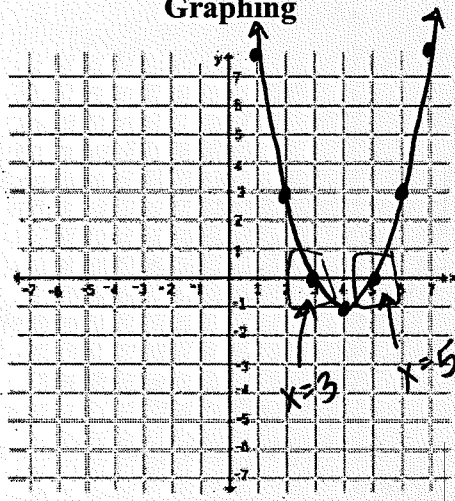
X	y
1	8
2	3
3	0
4	-1
5	0
6	3
7	8

X=3   X=5

8. $x^2 - 8x = -15$ $3x^2 - 7x - 6 = 0$

a) What is the discriminant?   a) __121__

b) How many and what type of solutions are there?   b) _2 Real (Rational)_

c) Solve this equation by **QF** AND **Factoring**.   c) __X = 3   X = -$\frac{2}{3}$__

Quadratic Formula

$$x = \frac{-(-7) \pm \sqrt{121}}{2(3)}$$

$$x = \frac{7 \pm 11}{6}$$

$$\frac{7+11}{6} \qquad \frac{7-11}{6}$$

$$\frac{18}{6} = \boxed{3} \qquad -\frac{4}{6} = \boxed{-\frac{2}{3}}$$

Factoring

	3x	2
1x	$3x^2$	2x
-3	-9x	-6

-7x

$(1x-3)(3x+2) = 0$

$\boxed{x=3}$

$3x+2 = 0$
$-2 \quad -2$
$\frac{3x}{3} = \frac{-2}{3}$

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

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

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

a) What is the discriminant?

a) $\underline{\quad 288 \quad}$

b) How many and what type of solutions are there?

b) $\underline{\text{2 Real (Irrational)}}$

c) Solve this equation by **QF** AND **Square Roots**.

c) $\underline{\quad X = 3\sqrt{2} \quad X = -3\sqrt{2} \quad}$

Quadratic Formula

$$X = \frac{-(0) \pm \sqrt{288}}{2(2)}$$

$$\sqrt{144 \cdot 2}$$
$$\sqrt{144}\sqrt{2}$$
$$12\sqrt{2}$$

$$X = \frac{0 \overset{\div 4}{\pm} 12\sqrt{2}}{4 \div 4}$$

$$X = \frac{0 \pm 3\sqrt{2}}{1}$$

$$\frac{0 + 3\sqrt{2}}{1} = 3\sqrt{2}$$

$$\frac{0 - 3\sqrt{2}}{1} = -3\sqrt{2}$$

Square Roots

$$2x^2 - 36 = 0$$
$$+36 \quad +36$$

$$\frac{2x^2}{2} = \frac{36}{2}$$

$$\sqrt{x^2} = \sqrt{18}$$

$$X = \pm\sqrt{18}$$

$$X = \pm\sqrt{9}\sqrt{2}$$

$$X = \pm 3\sqrt{2}$$

10. $x^2 + x = 2$

a) What is the discriminant?

a) $\underline{\quad 9 \quad}$

b) How many and what type of solutions are there?

b) $\underline{\text{2 Real (Rational)}}$

c) Solve this equation using **ANY method of your choice.**

c) $\underline{\quad X = -2 \quad X = 1 \quad}$

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

I chose factoring

$$(x+2)(x-1) = 0$$

$$X = -2 \quad X = 1$$

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

11. $4x^2 + 1 = 4x$

a) What is the discriminant?

a) 0

b) How many and what type of solutions are there?

b) 1 Real

c) Solve this equation using **ANY method of your choice.**

c) $x = \frac{1}{2}$

$$x = \frac{-(-4) \pm \sqrt{0}}{2(4)}$$

I chose quadratic formula

$$x = \frac{4 \pm 0}{8}$$

$$x = \frac{4}{8}$$

$$x = \frac{1}{2}$$

12. A volleyball is spiked and followed the path described by the equation $h = -16t^2 - 55t + 10$, where h is the height in feet the ball is off the ground and t is the time in seconds. How much time do the opposing players have to hit the spiked ball before it hits the ground? Solve this using **ANY method of your choice.**

I chose graphing calculator

0.17 seconds