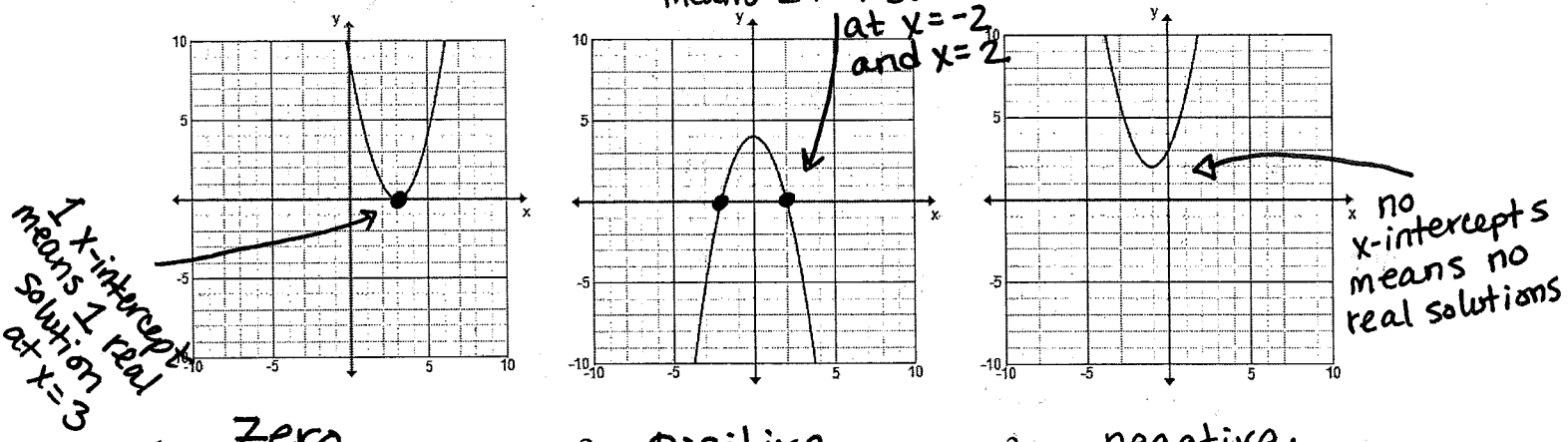
Unit 5 Part 2 Review #1 Worksheet

Name ANSWER KEY Per _____

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

3-Tri Intermediate Algebra A

Problems 1-3: Given the graph of a quadratic function, determine if the discriminant is positive, zero, or negative.



1. Zero

2. positive

3. negative

4. Using the equation to answer the questions below: $x^2 + x - 2 = 0$

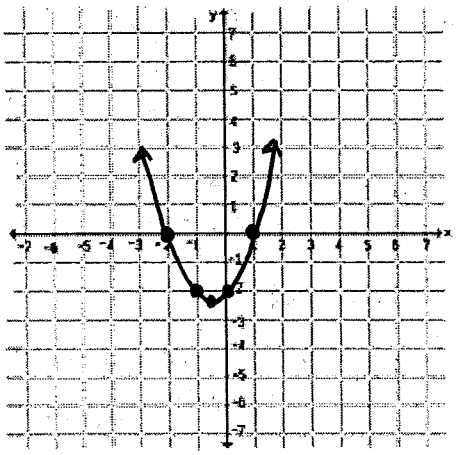
a) What is the vertex?

(-0.5, -2.25)

b) Graph the equation.

x	y
-2	0
-1	-2
-0.5	-2.25
0	-2
1	0

vertex →



c) What are the solutions?

x = -2 x = 1

d) What is the domain?

ℝ

e) What is the range?

y ≥ -2.25

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

5) $x^2 - 10x + 9 = 0$

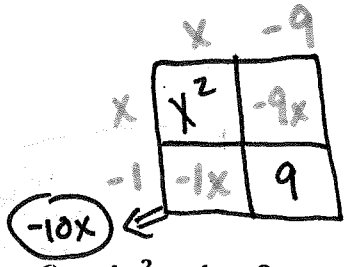
a) What is the discriminant? a) 64

$a=1 \quad b=-10 \quad c=9$

$(-10)^2 - 4(1)(9) = 64$

b) How many and what type of solutions are there? b) 2 Real (Rational)

c) Solve this equation by **factoring.** c) $x=9 \quad x=1$



$(x-9)(x-1)=0$

$x-9=0 \quad x-1=0$

$+9 \quad +9 \quad +1 \quad +1$

$x=9 \quad x=1$

6) $4x^2 - 4 = 0$

a) What is the discriminant? a) 64

$a=4 \quad b=0 \quad c=-4$

$(0)^2 - 4(4)(-4) = 64$

b) How many and what type of solutions are there? b) 2 Real (Rational)

c) Solve this equation by **square roots.** c) $x=1 \quad x=-1$

$4x^2 - 4 = 0$

$+4 \quad +4$

$\frac{4x^2}{4} = \frac{4}{4}$

$\sqrt{x^2} = \pm\sqrt{1}$

$x = \pm 1$

7) $x^2 - 4x = -18$

$+18 \quad +18$

a) What is the discriminant? a) -56

$x^2 - 4x + 18 = 0 \quad a=1 \quad b=-4 \quad c=18$

$(-4)^2 - 4(1)(18) = -56$

b) How many and what type of solutions are there? b) 2 complex

c) Solve this equation using the **quadratic equation.** c) $x = 2+i\sqrt{14} \quad x = 2-i\sqrt{14}$

$x = \frac{-(-4) \pm \sqrt{-56}}{2(1)}$

$\sqrt{-56}$

$\sqrt{-1 \cdot 4 \cdot 14}$

$\sqrt{-1}\sqrt{4}\sqrt{14}$

$2i\sqrt{14}$

$x = \frac{4 \pm 2i\sqrt{14}}{2}$ (÷2)

$x = 2 \pm i\sqrt{14}$