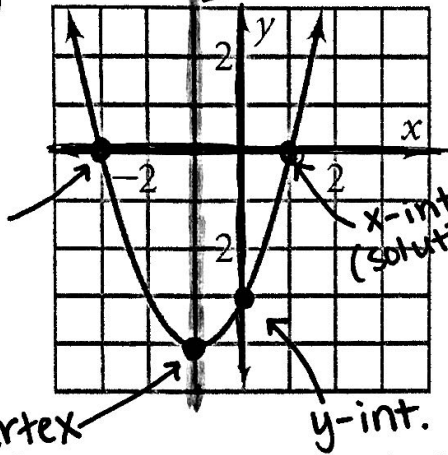


**Exam Review Day 2**

Name: \_\_\_\_\_

11. Define the following characteristics of the given quadratic function.

1)



Vertex:  $(-1, -4)$

Low  
Minimum or Maximum?

Axis of symmetry:  $x = -1$

X-intercepts:  $(1, 0)$   $(-3, 0)$

Y-intercept:  $(0, -3)$

How many solutions does the related quadratic equation have? two

VI. Solve each quadratic equation by the given method.

2) Solve each quadratic equation for x by factoring.

a)  $x^2 - x - 30 = 0$   
 $(x-6)(x+5) = 0$   
 $x-6=0 \rightarrow x=6$   
 $x+5=0 \rightarrow x=-5$

b)  $x^2 + 9x = -20$   
 $x^2 + 9x + 20 = 0$

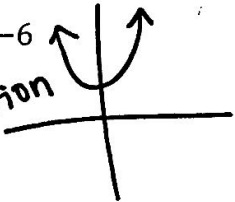
$x^2 + 9x + 20 = 0$   
 $(x+5)(x+4) = 0$   
 $x = -5$   
 $x = -4$

3) Solve each quadratic equation for x by graphing.

a)  $4x^2 + 12x + 5 = 0$   
 $x = -0.5$   
 $x = -2.5$



b)  $3x^2 = -6$   
 NO SOLUTION



c)  $4x^2 - 12x + 9 = 0$   
 $x = 1.5$

VII. Answer the following questions on projectile motion.

4) A volcanic eruption blasts a boulder upward with an initial velocity of 240 feet per second. This is modeled by the equation  $h(t) = -16t^2 + 240t$ .

a) How long will it take the boulder to hit the ground? 15 seconds (2nd trace zero)

b) What was the highest point the boulder reached? At what time did this occur?  
900 feet  
7.5 seconds

c) How high was the boulder after 5 seconds?  
800 feet (Table)

d) When was the boulder 500 feet in the air?  
2.5 sec and 12.5 sec

VIII. Solve the following area problem by graphing or by factoring.

5) The length of a rectangular garden is 4 yards more than its width. The area of the garden is 60 square yards. Find the dimensions of the garden.

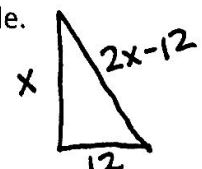
$60 = w(w+4)$   
 $60 = w^2 + 4w$   
 $0 = w^2 + 4w - 60$   
 $(w+10)(w-6) = 0$   
 $w = 6$   
 $l = 10$

6) What is the largest of two positive consecutive ODD integers if five times the smaller is equal to three more than four times the larger?

$5x = 4(x+2) + 3$   
 $5x = 4x + 8 + 3$   
 $x = 11$

7) The smallest leg of a right triangle is 12. The hypotenuse is twelve less than twice the longer leg. Find the missing leg and the missing hypotenuse of the right triangle.

leg:  $x = 16$   
 hyp:  $2(16) - 12 = 20$



$x^2 + 12^2 = (2x-12)^2$   
 $x^2 + 144 = 4x^2 - 48x + 144$   
 $0 = 3x^2 - 48x$   
 $0 = 3x(x-16)$