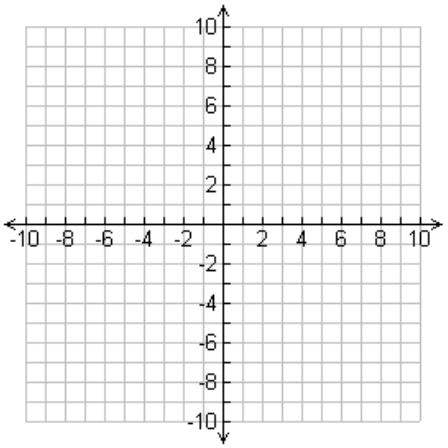
Name: _____ Date: _____ Period: _____

Algebra 1B Unit 9 practice test Show your work and write your answer in the space provided.

1a) Graph the parabola given by $y=-2x^2 - 8x - 5$



1b) What is the axis of symmetry in the parabola? _____

1c) What is the vertex of the parabola? _____

1d) Is the vertex a maximum or a minimum? _____

Solve the following quadratic equations by factoring. If the equation is not factorable, write "prime".

2) $x^2 + 12x + 27=0$ _____

3) $p^2 + 12p + 21 = -6$ _____

4) $35k^2 - 22k + 7= 4$ _____

5) $3x^2 + 7x - 7 = 0$ _____

Solve the following equations by using the quadratic formula.

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

7) $4x^2 - 1= -8x$ _____

8) $2x^2 + 23x = 14x$ _____ 9) $2x^2 + 39x = -15$ _____

Answer the following word problems:

10) Jason jumped off of a cliff into the ocean in Acapulco while vacationing with some friends. His height as a function of time could be modeled by the function $h = -16t^2 + 16t + 480$, where t is the time in seconds and h is the height in feet.

a. How long did it take for Jason to reach his maximum height? _____

b. What was the highest point that Jason reached? _____

c. Jason hit the water after how many seconds? _____

EC) If a toy rocket is launched vertically upward from ground level with an initial velocity of 128 feet per second, then its height h after t seconds is given by the equation $h = -16t^2 + 128t$ (if air resistance is neglected).

a. How long will it take for the rocket to return to the ground? _____

b. After how many seconds will the rocket be 112 feet above the ground? _____

c. How long will it take the rocket to hit its maximum height?_____

d. What is the maximum height? _____