1) Solve $3x^2 - 7x - 8 = 0$

a = _____   b =_____   c = _____

Exact Solutions x = _____   x = _____

Approximate solutions x = _____   x = _____

2) Solve by factoring or using Quadratic Formula:

a) $x^2+11x -12 = 0$

b) $x^2-7x -30 = 0$

3) Solve by using the quadratic formula

a) $28= 16t^2 +2t$

b) $4x^2 + x -1 = 0$

4) Quadratic Formula in real life: Throwing a Rock

A rock is thrown from the top of a tower that is 300 feet tall. If its height above the ground can be modeled by

$$h = -16t^2 + 64t + 300 \quad \text{where h is in feet, and t is in seconds.}$$

a) To the nearest tenth of a second, how long does it take the rock to reach the ground?

b) To the nearest tenth of a foot, how high will the rock go before it starts falling down?

c)   To the nearest tenth of a second, how long will it take the rock to reach its maximum height?

5) Example using the Quadratic Formula for stable population levels.

For a certain population the growth rate G, in thousands of individuals per year depends on the size N, in thousands, of the population. The relation is

$$G = 2 + 2N - .3N^2$$

-the population level is stable so the growth rate is 0. At what level is the population stable?

a = _____   b = _____   c = _____

Solution   N = _____   N = _____

But the solution is _____   because _____

6) Find the vertex of $y = 3x^2 - 24x + 10$

7) Find the vertex of $y = 2x^2 - 28x + 12$

8) Example using vertex—A rectangular pen can be constructed using the side of a barn as one boundary and 2500 ft. of fence to make the other three sides. Find the length and width of the rectangle to make the largest area.

Draw a picture-

Work to solve problem.

x = width = _____   length= _____

9) Example using vertex—A rectangular pen can be constructed using the side of a barn as one boundary and 4500 ft. of fence to make the other three sides. Find the length and width of the rectangle to make the largest area.

Draw a picture-

Work to solve problem.

x = width = _____   length = _____