In-Class Practice Assignment Name_____

1. Use the quadratic formula to find the zeros of the following functions.
   Finish off by saying: "therefore, the zeros are (___ , 0) and (___ , 0)"

a) $y = -3x^2 + 6x + 10$ b) $y = 4x^2 + 5x + 3$

2. Solve for x using the method of Factoring.

Finish off by saying: "therefore, the solutions are x_1= ___ and x_2 =____"

a) $x^2 - 4x - 17 = -5$ b) $(x-3)^2 + 4x = -10x - 6$ (Hint: expand then collect like terms)

3. A football is kicked from the roof of a building (sounds fun). The height of the ball above the ground at any time is modelled by the function $h = -5t^2 + 10t + 175$, where *h* is the height in metres and *t* is the time in seconds.

a) How high is the football before it is kicked (hint: no time has passed before the ball is kicked (hint $t = 0$)?

b) What is the maximum height the ball reaches?

c) How long will it take the football to hit the ground?

4. A computer software company models the profit on its latest video game with the function

$P = -2x^2 + 32x - 110$, where x is the number of games sold (in thousands) and P is the profit (also in thousands).

a) What is minimum number of games that need to be sold to break even?

b) How many games must they sell to make a profit of $16,000?

c) What is the maximum profit?

5. A model rocket is launched into the air. Its height, *h* in metres after *t* seconds is $h = -5t^2 + 60t + 4$.

a) What will the height be after 2 seconds?

b) When will the rocket hit the ground?

c) When will the rocket achieve max height? (Hint: Think vertex)

d) What is the maximum height of the ball? (Hint: Think vertex)

e) When will the rocket reach 25m above the ground?