Due October 5, 2020 **Written Assignment #5** Name:

Instructions: Complete the following exercises. Show all work and write in complete sentences where appropriate. Scan and upload a copy to Blackboard.

1. From the top of a 400 foot high building, a projectile is shot up with a velocity of 64 feet per second. Its altitude h after t seconds is given by the function $h(t) = -16t^2 + 64t + 400$.

   (a) What is the projectile's maximum altitude? *Give your answer in a complete sentence, including units.*

   (b) When does the projectile achieve its maximum altitude? *Give your answer in a complete sentence, including units*

   (c) When does the projectile hit the ground? *Give your answer in a complete sentence, including units*

2. Consider the polynomial $f(x) = \frac{1}{30}(x-5)(x+2)(x-3)^2$.
   Determine the following:

   - The degree of f
   - The zeros of f and their multiplicities
   - The vertical intercept of the graph of f
   - The end behavior of f

   Once you have this information, sketch a graph of the function below.