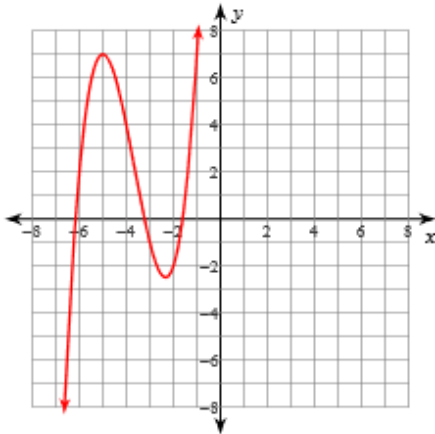# Interim Assessment: Function and Quadratics Review Questions

1.) The graph of the function $f(x) = x^3 + 11x^2 + 35x + 32$ is pictured below. Use your calculator to find the indicated characteristics.

Domain:

Range:

Increasing Intervals:

Decreasing Intervals:

X Intercepts

Y intercepts

Minimums

Maximums

2.) How many roots does the function presented in question #1 have? What type of roots are they?

3.) List the transformations that changed the function $f(x) = x^2$ to $f(x) = -3(x - 2)^2 + 4$.

4.) List the transformations that changed the function $f(x) = 2\sqrt{x + 1} - 2$ to $g(x) = \sqrt{x + 4} + 2$.

5.) A toy rocket is fired upward from a platform. The relation between its height h in feet and the time t from launch in seconds can be described by the equation $h = -16t^2 + 64t + 10$.

    a.) How long does it take for the rocket to hit the ground?

    b.) What is the height of the platform from which the rocket is fired?

    c.) What is the maximum height of the rocket?

    d.) How long does the rocket stay more than 48 feet in the air?

6.) Simplify the expression $(4 + 2i)(2 - i)$.

7.) Solve the following expressions by Graphing, Factoring or the Quadratic Formula

    a.) $x^2 = -2x + 1$ b.) $2x^2 + 4x = 70$ c.) $4x^2 - 729$

8.) Put the function $2x^2 - 5x + 1 = 0$ in vertex form.

10.) Put the function $x^2 + 4x + 4 = 0$ in vertex form.

11. Write quadratic function in standard form for which one of the roots is $x = 2 + i$.