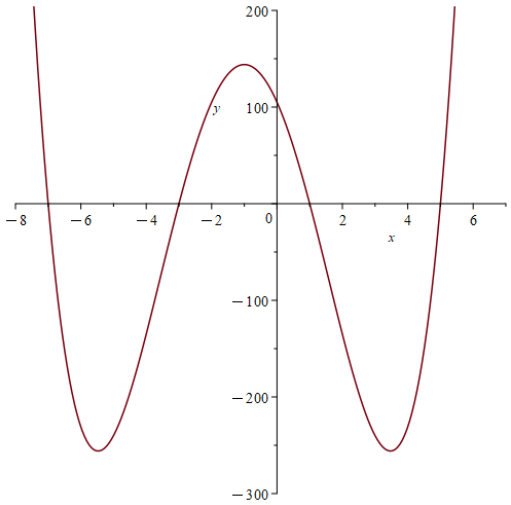
MAT 1340 Week 4 Written Assignment
points Covers Sections 1.10, 1.11
1.10 – Solving Equations Graphically
1.11 – Modeling Variation.

Be sure to follow College Algebra formatting guidelines in your work.

1. The figure shows a graph of $y = x^4 + 4x^3 - 34x^2 - 76x + 105$.



   a. (5 pts) Use the graph to solve the equation
   $x^4 + 4x^3 - 34x^2 - 76x + 105 = 0$

   b. (5 pts) Use the graph to solve the inequality
   $x^4 + 4x^3 - 34x^2 - 76x + 105 > 0$

2. Let $y = \sqrt[3]{9 - x^2}$. Use a graphing utility to graph this equation and answer the following:

   a. (5 pts) Show the graph and show the *x*- and *y*-intercepts on the graph.

   b. (5 pts) Check the graph for symmetry, both from the graph, and analytically, as in Week 2 Written Assignment, where we test for symmetry.

3. Solve the equation $\sqrt{3x + 22} + 2 = x$ in two ways:

   a. (5 pts) Using a graphing utility. Include a rough sketch and show the solution on the graph.

   b. (5 pts) Algebraically. Show all work.

4. (5 pts) If *S* is proportional to the product of *x* and the square of *y* and inversely proportional to the square root of *z*, what is the value of *S* when $x = 2$, $y = 3$, and $z = 4$, if the value of *S* is 3, when $x = 3$, $y = 2$, and $z = 16$?