Answer all questions to the best of your ability. Full credit will only be given if all work is shown and organized and it is clear what your answer is. The HW is out of 10 points.

- Section 5.1, page 337, problems: 25, 26, 37, 38, 42, 49abde, 50abde
- Section 5.2, page 350, problems: 13, 20, 21, 23, 30abcd

1. Sketch the graph of the polynomial $f(x) = -2(x + 2)(x + 1)^2(x - 3)^3$ using the steps discussed in class.

2. Use transformations to graph $R(x) = \frac{-1}{x^2 + 4x + 4}$.

3. Write an equation for a polynomial which has 4 as a zero with multiplicity 2, -1 as a zero with multiplicity 3, 2 as a zero with multiplicity 1 that opens down.

4. Write the equation for a rational function which has zeros 2, -1 and 3 each with multiplicity one and vertical asymptotes at -3 and 4 and horizontal asymptote at $y = -2$. 