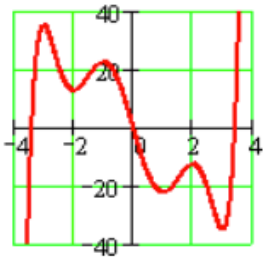
Pre Calculus
Study Guide: Chapter 4

1. Identify the number of real and imaginary roots of the graph below.

   $7^{th}$ Degree




2. Write a polynomial equation given the following roots: 5i, – 5i, and $\frac{2}{5}$.

3. Solve the following equation using the indicated method.
   a. $x^4 + 5x^2 - 14 = 0$; FACTORING
   b. $4x^6 + 20x^4 + 24x^2 = 0$; FACTORING
   c. $2x^2 + 9x + 7 = 0$; QUADRATIC FORMULA
   d. $x^2 - 8x + 5 = 0$; COMPLETING THE SQUARE

4. Use: $(-x^6 + 4x^4 + 3x^2 + 2x - 2) \div (x + 2)$
   a. Find the remainder using Remainder Theorem
   b. Divide using synthetic division.

5. Use: $5x^4 - 46x^3 + 84x^2 - 50x + 7$
   a. List ALL the possible roots.
   b. Find the ALL the possible roots using Rational Root Theorem.

6. Solve:
   $$\frac{2p}{p-2} + \frac{p+2}{p^2-4} = 1$$

7. Decompose the fraction below into partial fractions:
   $$\frac{4x-1}{x^2+x-2}$$

8. Solve. $\sqrt{x+5} = x - 1$

9. Solve. $3 + \sqrt{5x-10} \leq 8$