1. Given the polynomial

$$f(x) = 3x^2 - 5x + 1,$$

   a. Find the coordinates of the vertex.
   b. Find the minimum value.

2. Given the polynomial.

$$g(x) = -2x^2 + 4x - 1,$$

   find the interval where $g(x) > 0$.

3. You are building a garden fence with a permiter of 25 feet. Find the maximum area it can encompass.

4. Given the polynomial

$$h(x) = -2x^5 + 3x^2 - 5x,$$

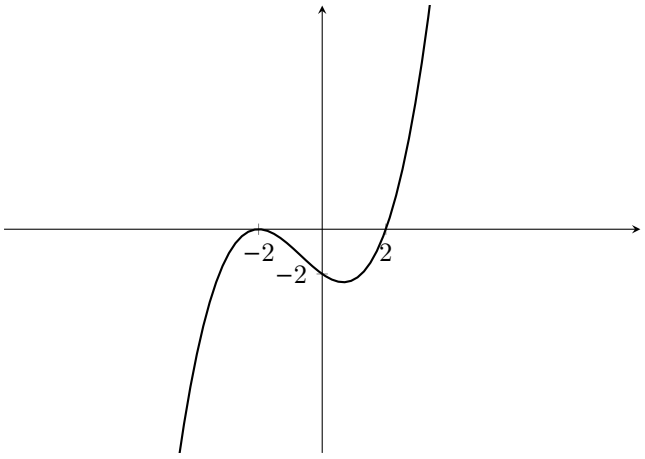
   a. What is the end behavior of h?
   b. What is the degree of h?
   c. What is the maximum number of turning points possible for h?

5. Given the polynomial

$$p(x) = -3(x-2)^2(2x+1)^5\left(-x + \frac{1}{2}\right)^3$$

   a. What are the leading term and degree of p?
   b. What are the x-intercept and y-intercept of p?
   c. What are the multiplicities of the zeroes of p?

6. Give the formula of the plot below



7. What is the remainder of

$$q(x) = 22x^5 - 5x^3 + 11x + 2$$

   after dividing by $x + 1$?

8. Given the polynomial

$$v(x) = 5x^4 - 2x^3 + 5x - 10$$

   List all possible rational roots.

9. Find the asymptotes (vertical or horizontal) of

$$F(x) = \frac{x^3 - 3x + 1}{x^2 + 1}$$

10. Find the asymptotes (vertical or horizontal) of

$$G(x) = \frac{x^2 + 1}{x^3 - 3x + 1}$$

11. Find the asymptotes (vertical or horizontal) of

$$H(x) = \frac{x^2 + 1}{x^2 - 3x + 1}$$

12. Find the asymptotes (vertical or horizontal) of

$$P(x) = \frac{x^2 + 2x + 1}{x + 1}$$