3.1 Review

Write each polynomial in standard form. Then classify it by degree and by number of terms.

1. $4x + x + 2$ 2. $1 - 2s + 5s^4$

For each polynomial, find the following

a) Intervals of Increase and Decrease

b) Local Maximum and Local Minimum

c) x-intercepts

d) y-intercept

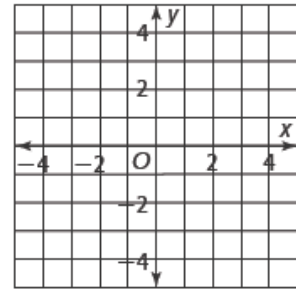e) Average Rate of Change from [0, 2]

f) End Behavior

3. $f(x) = -2x^4 - x^3 + 5x^2 - 2x + 3$

4. $f(x) = 4x^2 + 4x - 6$

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

Sketch the graph using the clues listed. Identify the turning points and x-intercepts.

5. $f(x)$ is negative on the intervals $(-\infty, -5)$ and $(-1, 3)$

$f(x)$ is positive on the intervals $(-5, -1)$ and $(3, \infty)$

$f(x)$ is increasing on the interval $(-\infty, -3.5)$ and $(1.25, \infty)$

$f(x)$ is decreasing on the interval $(-3.5, 1.25)$

6. The total revenue of a bulb company is modeled by the expression $R(X) = 0.95x^2 + 1.95x + 6$, where x is the number of bulbs produced per week and the expression is in dollars.

The cost to produce the bulbs is modeled by the expression C(x) = $0.09x^2 + 1.86x - 3$.

a) Write a variable expression to represent the company's profit if x bulbs are produced.

b) How much profit will the company make in a week if they produce 1,000 bulbs?

c) Find the x and y-intercept and then interpret them in the context of the problem. Does this make sense?