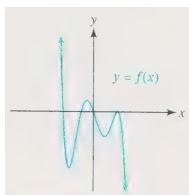


Complete as many of the following problems as you can with your group. You do not have to go in order. Each group will be given a specific problem that they must complete and present to either Professor MG or to Stefanie before they leave.

- (1) Consider the following graph of a function f



- (a) How many turning points are there? How many x -intercepts?
 (b) Is the leading coefficient positive or negative? Is the degree odd or even?
 (c) Describe the end behavior
- (2) Without graphing $f(x) = 2 + 3x - 3x^2 - 2x^3$, answer the following:
 (a) What is the degree of the polynomial and what is the leading coefficient?
 (b) What is the end behavior of the graph?
- (3) Sketch a graph that satisfies all of the following:
- The graph has an x and y intercept at $(0, 0)$
 - The graph is increasing on $(0, 4)$ and decreasing on $(-\infty, 0), (4, \infty)$
 - The graph is concave down on $(2, \infty)$ and concave up on $(-\infty, 2)$
- (4) Sketch two different graphs that both satisfies all of the following:
- Increasing on $(-\infty, 0), (4, 6),$ and $(6, \infty)$
 - Decreasing on $(0, 4)$
- (5) Sketch a graph that satisfies all of the following:
- Absolute maximum at $x = 4$
 - Absolute minimum at $x = 5$
 - Local maximum at $x = 2$
 - Local minimum at $x = 3$

Key:

- (1) (a) 3 and -2 (c) f approaches ∞ (rises) on the left and $-\infty$ (falls) on the right
 (b) Approaches ∞ (rises) to the left and approaches $-\infty$ (falls) to the right (3) Many answers
- (2) (a) Four turning points, 4 x -intercepts (4) Many answers
 (b) $a < 0$ (5) Many answers