ACMAT117 Fall 2025
Professor Manguba-Glover
Section 4.2 Homework (HW 13) Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late (or do not attempt a problem) forfeit their ability to rewrite those problems for credit.

Use the following graphs for problems (1) through (6) and do the following

(a) Match the equation with its graph

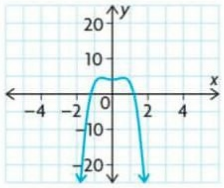
(b) Estimate any x-intercepts

(c) Estimate the interval(s) where the function is positive

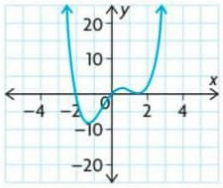
(d) Estimate the coordinates of any turning point(s)

(e) Describe the end behavior of the graph

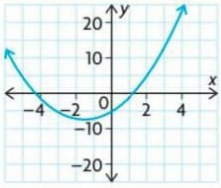
A



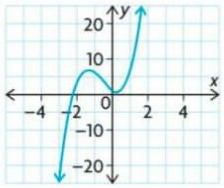
C



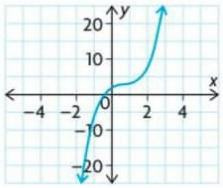
E



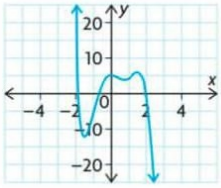
B



D



F



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

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

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

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

(5) $f(x) = -2x^5 + 3x^4 + 6x^3 - 10x^2 + 2x + 5$

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

(7) Sketch a graph using what you know about degree, leading coefficient, and zero multiplicities: $f(x) = (x+4)^3(x+1)(x-1)(x-2)^2$

(8) Sketch a graph using what you know about degree, leading coefficient, and zero multiplicities: $f(x) = (-2x+3)(x-1)^3(x+2)^2$

(9) Sketch a graph that satisfies all of the following conditions:

- Increasing on $(-\infty, 3)$ and decreasing on $(3, \infty)$
- Concave up on $(-4, 0)$ and concave down on $(-\infty, -4), (0, \infty)$

(10) Sketch a graph that satisfies all of the following conditions:

- Increasing on $(-\infty, -2)$ and decreasing on $(2, \infty)$
- Relative maximum at $x = -2$
- x-intercepts at $x = -2, 1$, and 4
- y-intercept at $y = -3$