

Instructions: Please work the following problems on other pieces of paper. You must show all work and calculations in order to receive full credit. I would prefer to collect your assignments in class on the day it is due, but I will accept it as late as 5:00 PM on the due date. Assignments submitted later will receive 50% credit.

1. Section 5.1 # 6.
2. Section 5.1 # 24.
3. Section 5.1 # 36. Skip part (c).
4. Let $f(x) = (x - 2)^3(x - 4)$.
 - (a) Determine the critical values for f .
 - (b) Determine the intervals on which the function is increasing and decreasing.
 - (c) Locate any relative extrema. Write your answer using ordered pairs.
5. Section 5.1 # 44.
6. Section 5.1 # 58.
7. Section 5.2 # 16.
8. Let $g(x) = 3x^5 - 20x^4 - 40x^3 + 480x^2 - 60x + 180$.
 - (a) Determine the intervals on which the graph of $y = g(x)$ is concave up and down. *Hint:* Use factoring by grouping.
 - (b) Identify any inflection points. Write your answer using ordered pairs.
9. Section 5.2 # 50.
10. Section 5.3 # 18.
11. Section 5.3 # 50.
 - (a) Draw 3 different graphs for f' . In particular draw each of the following:
 - i.) a graph of f' that does not touch the x -axis.
 - ii.) a graph of f' that touches the x -axis in exactly one place.
 - iii.) a graph of f' that intersects the x -axis twice.
 - (b) Draw 3 different graphs for f based on the three graphs of f' in part (a).