

Name: _____ Section: _____

Instructions: Show all your work in order to receive proper credit. No formula sheets and no notes are allowed during the quiz. No cell phones, calculators, or any other electronic devices are allowed in a student's possession during any quiz. All such devices must be put away in the student's bag, out of reach of the student during the quiz. Quiz should be completed in one seating with no breaks. Your work must be written clearly using proper notation. Answers must be justified using techniques that have been taught in this course. Good luck! **Timing:** 15 minutes

1. a. (9 pts) Consider the function f and its derivatives below.

$$f(x) = \frac{2x^2 - 3x}{x - 2}, f'(x) = \frac{2(x - 3)(x - 1)}{(x - 2)^2}, f''(x) = \frac{4}{(x - 2)^3}$$

Find the vertical and horizontal asymptotes of f . Then find where f is decreasing, where f is increasing, where f is concave down, and where f is concave up. Calculate the x -coordinates of all local minima, local maxima, and points of inflection. Write "NONE" for your answer if appropriate. Intervals should be given in a comma-separated list and should be as inclusive as possible. Sketch the graph on the grid provided. Fill in the table below. ONLY THE ANSWERS IN THE TABLE AND GRAPH WILL BE GRADED.

vertical asymptote(s):	
horizontal asymptote(s):	
where f is decreasing:	
where f is increasing:	
x -coordinate(s) of local minima:	
x -coordinate(s) of local maxima:	
where f is concave down:	
where f is concave up:	
x -coordinate(s) of inflection point(s):	

This page is for scratch work. Do not detach this sheet. Sketch the graph on the next page.

b. (1 pt) Sketch the graph of $f(x)$ on the provided grid below. Make sure to label the scales on the axes! For each local extremum or inflection point, identify its coordinates and label the point “local min.,” “local max”, or “infl. pt.” as appropriate.

