

MAT265 HOMEWORK 03

Due Date: February 10, 2015

Name: _____

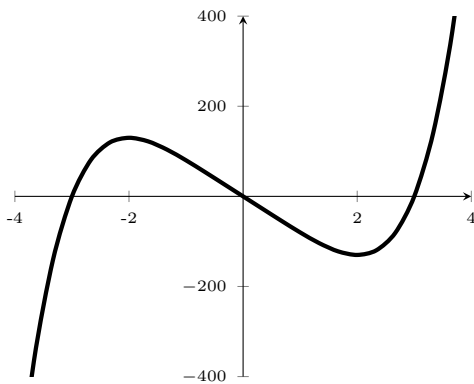
Instructions: The following exercises are similar to those found in the course text book [related text book question are in brackets]. Show ALL your work and write neatly. This assignment is due at the beginning of the class period on the date above. Group work is allowed and encouraged, but each member must write up his/her own solutions. Submissions without staples, without a name, or without work shown *will not receive credit*.

1. [§2.2, #36] Find the derivative of the function **using the definition of derivative**. State the domain of the function and the domain of its derivative.

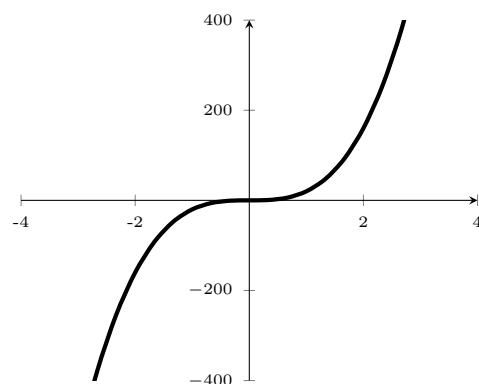
$$f(x) = x^{5/2}$$

2. [§2.2, #40] The four figures below show graphs of f , f' , f'' , and f''' . Identify each curve, and explain your choices.

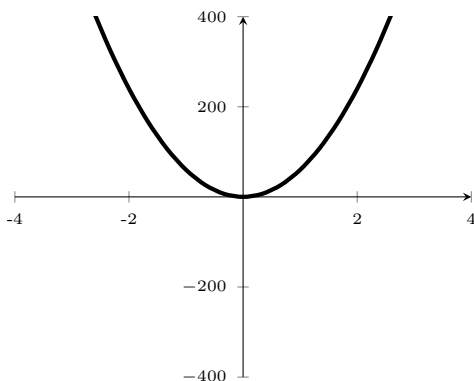
a.



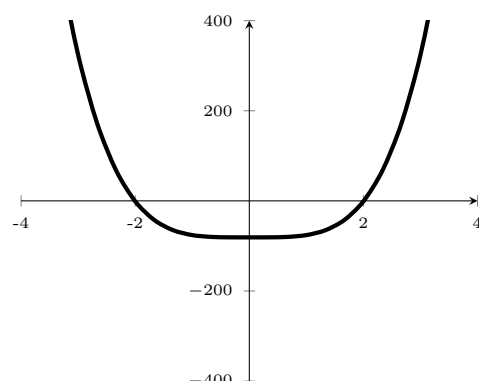
b.



c.



d.



3. [§2.3, #38] Find the points on the curve $y = 2x^3 + x^2 - 4x + 1$ where the tangent is horizontal.
4. [§2.3, #64] Find a parabola with equation $y = ax^2 + bx + c$ that has slope 4 at $x = 2$, slope -6 at $x = -1$, and passes through the point $(5, 1)$.