

Math 251: Pledged Set 5

Due: October 7, 2008

This is a pledged set. Therefore, no outside help from book, calculator, or other people.

1. Find the equation of the tangent line of

$$y = \sqrt[5]{x}$$

at the point $(1, 1)$.

2. Find the points on the equation

$$y = 2x^3 + 3x^2 - 12x + 1$$

where the tangents are horizontal.

3. Differentiate

$$y = \frac{v^3 - 2v\sqrt[3]{v}}{v}.$$

4. Differentiate

$$\sin x + \frac{1}{2} \cos x.$$

5. Prove

$$\frac{d}{dx}(\cot x) = -\csc^2 x.$$