

Math 150A, Section 2, Spring 2007
Homework Assignment 2

Name:

Show your work. No work, no credit.

1. Use the intermediate value theorem to show that there is a solution of the equation $4x^3 - 6x^2 + 3x - 2 = 0$ in the interval $[1, 2]$.

2. Find the equation of the tangent line to the curve $y = \frac{x-1}{x-2}$ at the point $(3, 2)$.

3. Using the δ, ε definition of limit, prove that $\lim_{x \rightarrow 6} \left(\frac{x}{4} + 3 \right) = \frac{9}{2}$.

4. By using the definition of continuity, determine if the function

$$f(x) = \begin{cases} x + 2 & \text{if } x < 3, \\ 4 & \text{if } x = 3, \\ x^2 - 4 & \text{if } x > 3, \end{cases}$$

is continuous at 3. If applicable, name the type of discontinuity.

5. A ball is thrown upward with velocity 64 feet/sec, so that its height in feet after t sec is given by $s(t) = 64t - 16t^2$.
- By using the definition of velocity, find the velocity $v(t)$ of the ball as a function of t .
 - Find the velocity of the ball when it reaches the ground.

Pledged

Honor code: I have neither given nor received help on this assignment.