Mathematics 122

Quiz #37 Name: Key

You must show your work to get full credit.

1. A function is given by the table

$\Delta t =$ .2 .2 .2

t	0.0	0.2	0.4	0.6
$g(t)$	5.3	4.2	3.5	2.9

$\Delta g =$ -1.1 -.7 -.6

(a) Fill out the following table for the values of the derivative.

t	0.1	0.3	0.5
$g'(t)$	-5.5	-3.5	-3.0

$\frac{-1.1}{.2}$ $\frac{-.7}{.2}$ $\frac{-.6}{.2}$

(b) Estimate the the value of $g''(.2)$. $g''(.2) \approx$ 10

$g''(2) \approx \frac{\Delta g'}{\Delta t} = \frac{(-3.5)-(-5.5)}{.2} = \frac{2}{.2} = 10$

2. If $p(22) = 5$ and $p'(22) = -3$ then estimate $p(21.7)$.

$\Delta p \approx p'(22)\Delta t = -3(\Delta t)$

$\Delta t = 21.7 - 22 = -.3$ $p(21.7) \approx$ 5.9

so $\Delta p \approx -3(-.3) = +.9$

So $p(21.7) \approx p(22) + \Delta p = 5 + .9 = 5.9$

3. Draw the graph of a function that fits the following data and label any local maximums or minimums.

- $f'(x) > 0$ for $x < 2$ and $5 < x$,
- $f'(x) < 0$ for $2 < x < 5$.