Math 1A (9:30am – 10:20am)
Quiz 1 Version C
Fri Jan 8, 2009

SCORE: ___ / 10 POINTS

What month is your birthday ? ___ ___
What are the first 2 digits of your address ? ___ ___
What are the last 2 digits of your zip code ? ___ ___
What are the last 2 digits of your social security number ? ___ ___
[IF YOU DO NOT HAVE A SOCIAL SECURITY NUMBER, USE YOUR STUDENT ID NUMBER]

If an arrow is fired upward with a velocity of 57 m/s, its height in meters t seconds later is given by $y = 57t - 4.9t^2$.

SCORE: ___ / 3 POINTS

★ USE FORMULA $\dfrac{57x - 4.9x^2 - 162.5}{x-5}$ USING $x = 5.1,\ 5.02,\ 5.004,\ 5.0008$

[a] **[FILL IN THE TABLE]** Find the average velocity for the time period beginning when $t = 5$ and lasting

	time period lasting			
	0.1 second	0.02 second	0.004 second	0.0008 second
average velocity	7.51 ½	7.902 ½	7.9804 ½	7.9961 ½
	rounded to 4 decimal places			

[b] **[FILL IN THE BLANK]** The instantaneous velocity at $t = 5$ is 8 1.

The point $P(4, 2)$ lies on the curve $y = \dfrac{\sqrt{x}}{x-3}$.

SCORE: ___ / 5 POINTS

★ USE FORMULA $\dfrac{\frac{\sqrt{x}}{x-3} - 2}{x-4}$

[a] **[FILL IN THE TABLE]** If Q is the point $\left(x, \dfrac{\sqrt{x}}{x-3}\right)$, find the slope of the secant line PQ for the following values of x:

	$x = 4.4$	$x = 4.04$	$x = 4.004$	$x = 3.6$	$x = 3.96$	$x = 3.996$
slope of secant line	−1.254 ½	−1.683 ½	−1.743 ½	−2.906 ½	−1.822 ½	−1.757 ½
	rounded to 4 decimal places					

[b] **[FILL IN THE BLANK]** The slope of the tangent line at P is −1.75 1.

[c] **[FILL IN THE BLANK]** The equation of the tangent line at P (in point-slope form) is $y - 2 = -1.75(x - 4)$ 1.

The table below shows the value of a function $y = f(x)$.

SCORE: ___ / 2 POINTS

x	0	4	8	12	16	20
$f(x)$	37	29	22	17	13	11

Estimate the slope of the tangent line at $P(12, 17)$ by averaging the slopes of two **appropriate** secant lines.

SHOW YOUR CALCULATIONS.

½ $\dfrac{17-22}{12-8} = -\dfrac{5}{4}$ ¼

½ $\dfrac{13-17}{16-12} = -1$ ¼

¼ ¼

$\frac{1}{2}\left(-\frac{5}{4} + -1\right) = -\frac{9}{8}$ OR -1.125

EITHER ONE