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

SCORE: 8½/10 POINTS

What month is your birthday ? 02
What are the first 2 digits of your address ? 37
What are the last 2 digits of your zip code ? 32
What are the last 2 digits of your social security number ? 14
[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: 3/3 POINTS

[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 m/s 1.

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

SCORE: 3½/5 POINTS

[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:

	$x = 4.4$	$x = 4.04$ ½	$x = 4.004$ ½	$x = 3.6$ ½	$x = 3.96$ ½	$x = 3.996$ ½
slope of secant line	-1.25	-1.6833	-1.7431	-2.9057	-1.8223	-1.7570
	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 $y = -1.75 + 9$.

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

SCORE: 2/2 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 * $\dfrac{22-17}{8-12} = \dfrac{5}{-4} = -1.25$ ¼

½ $\dfrac{13-17}{16-12} = \dfrac{-4}{4} = -1$ ¼

* ¼ $\dfrac{-1.25 + (-1)}{2} = \dfrac{-2.25}{2} = -1.125$

avg. slope = -1.125 ¼