Staple!

Honors Calc 1
MAC3472 3203   **Exam A**   Prof. JLF King
Touch: 18Mar2017

Note. This is an open brain, open HHA, closed book exam. For A1 & A2 show no work.   Write expressions unambiguously e.g., "$1/a + b$" should be bracketed either $[1/a] + b$ or $1/[a + b]$. (Be careful with **negative** signs!)

A1: [z] Prof. King wears glasses. [Circle] one:
True.   Yes.   *Who?*

[a] $\log_9(\sqrt{3}) = $ ....

$\frac{d}{d\theta}\left(\theta^3 \cdot \sin(\theta)\right) = $ ....

[b] Suppose h is a differentiable, invertible fnc; let F denote its inverse fnc. Suppose that

$$h(2) = 3, \qquad h(3) = 5, \qquad h(5) = 1/3,$$
$$h'(2) = 8, \qquad h'(3) = -7, \qquad h'(5) = 11.$$

Then $F'(3) = $ __ .

[c] $\displaystyle\lim_{t \to ;0} \frac{\sqrt{3-t} - \sqrt{3}}{t} = $ ....

[*Hint*: Multiply numer.&denom. by $\sqrt{3-t} + \sqrt{3}$.]

A2: Stacie and Sameer are at 13th St. and University Ave. At noon Stacie starts walking west at 4mph whereas Sameer runs north at 8mph. After 15 minutes, let R denote the rate at which the distance between them is changing, and let D denote the distance between them. Then

$D = $ .... mi , $R = $ .... mph.

A3: Let Q_1 & Q_2 be the two points (named so that $j_1 < j_2$) on the parabola $\boxed{j^2 = k + 5}$ whose tangent line hits the point $P := (3, 0)$. Then
$Q_1 = (\ ,\ )$ & $Q_2 = (\ ,\ )$.

Carefully **graph the parabola** and plot P. **Mark** where Q_1 & Q_2 ought to appear by drawing the tangent lines. Label everything! Now **write-up your solution in *essay* form**, in complete English sentences, each starting with a capitalized **word** and ending with a visible period (or "!" or "?").

End of Exam A