DiffyQ Prereq A

DiffyQ
MAP2302 4689
Prof. J. King

A1: ___ ___ ___ 140pts

Total: ___ ___ ___ 140pts

A1: Show no work.

a $\left[\sqrt{3}^{\sqrt{2}}\right]^{\sqrt{8}}=$. $\log_8(4)=$.

b The **slope** of line $3[y-5]=2[x-2]$ is .
Point $(-4, y)$ lies on this line, where $y=$.

c The solutions to $3x^2 = 2 - 2x$
are $x =$.

d Quadratic $15x^2 + 23x + 6 = [Ax - \alpha] \cdot [Bx - \beta]$,
for numbers $A=$, $\alpha=$; $B=$, $\beta=$.

e For $x > 0$, let $B(x) := x^x$. Its derivative is
$B'(x)=$.
[*Hint:* How is y^z, for $y > 0$, defined in terms of the exponential fnc?]

f Below, f and g are differentiable fncs with

$$\begin{array}{llll} f(2)=3, & f(3)=5, & f'(2)=19, & f'(3)=17, \\ g(2)=11, & g(3)=13, & g'(2)=\frac{1}{2}, & g'(3)=7, \\ f(5)=43, & g(5)=23, & f'(5)=41, & g'(5)=29\,. \end{array}$$

Define the composition $C := g \circ f$. Then
$C(2) =$; $C'(2) =$.
Please write each answer as a product of numbers; **do not** multiply out. [*Hint:* The Chain rule.]

g **Math-Greek alphabet**: Please write the **two** missing data of lowercase/uppercase/name. Eg:
"iota: ι α: A B: B." You fill in: ι I A *alpha* β *beta*.

Ω: Υ: H:

σ: γ: ξ:

lambda rho delta mu

End of DiffyQ Prereq A

Please PRINT your Name

HONOR CODE: *"I have neither requested nor received help on this exam other than from my professor."*

Signature: