

Hello. This is a short-answer exam; Show no work.
Absolutely, positively, do NOT hand-in “scratch work”!

A3: The inverse-fnc of g , often written as g^{-1} , is *different* from the **reciprocal fnc** $1/g$. E.g, suppose g is invertible with $g(-2) = 3$ and $g(3) = 8$: Then $g^{-1}(3) = -2$, yet $[1/g](3) \stackrel{\text{def}}{=} 1/g(3) = 1/8$.

Please write **DNE** in a blank if the described object does not exist or if the indicated operation cannot be performed.

This is an **Open Brain** but No calculator exam.

[z] bifocals.tex Prof. King wears bifocals, and cannot read small handwriting. one: **True! Yes! Who?**

[a] quad-formula1.tex The solutions to $5x^2 = 2 - 2x$ are $x =$.

[b] exp-log1.tex $[\sqrt{2}^{\sqrt{27}}]^{\sqrt{3}} =$. $\log_8(4) =$.

[c] $\int_0^2 3^x dx =$.

[d] inverse-fnc1.tex Let $y = f(x) := [5 + \sqrt[3]{x}]/2$. Its inverse-function is $f^{-1}(y) =$.

[e] inverse-fnc3.tex Let $g(x) := 2x^3 + x^5$. Then $g^{-1}(3) =$ and $[g^{-1}]'(3) =$.

[f] series-GeoSum2.tex For natural number K , the sum $\sum_{n=5}^{5+K} 7^n$ equals .

[g] series-GeoSum3.tex $\sum_{n=1}^{\infty} r^n = 5104$. So $r =$ or **DNE**.

[Hint: The sum starts with n at **one**, not zero.]

A4: math-greek.tex Math-Greek alphabet: Please write the two missing data of lowercase/uppercase/name. Eg:

“iota: $\alpha:$ B: .” You fill in: I A *alpha* *beta*
 \hookrightarrow \hookrightarrow \hookrightarrow \hookrightarrow

M: P: $\Lambda:$ \hookrightarrow \hookrightarrow \hookrightarrow

$\Omega:$ $\xi:$ $\varepsilon:$ \hookrightarrow \hookrightarrow \hookrightarrow

nu: gamma: delta: chi: \hookrightarrow \hookrightarrow \hookrightarrow

A5: $\lim_{x \rightarrow 0^+} \frac{e^x - 1 - 3x}{x^2}$ equals: **Circle**

$+\infty$, $-\infty$, zero, $-3/2$, -3 , -1 ,
 some-other-real-number,
DNE in $[-\infty, +\infty]$.

[Hint: To what extent does l'Hôpital's Rule apply?]

End of Prereq-A

A3: 80pts

A4: 20pts

A5: 10pts

No name, or
 no honor code: -5pts

Ouch!, scratch work
 handed-in : -5pts

Total: 110pts

Please PRINT your Name

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

Signature: