Calc 2 MAC2312 | **Class-A** | Prof. JLF King 31Aug2015

Hello. **10 Oct; 1995**. Write expressions unambiguously e.g, "$1/a+b$" should be bracketed either $[1/a]+b$ or $1/[a+b]$. (Be careful with **negative** signs!) Do ***not*** approx.: If your result is "$\sin(\sqrt{\pi})$" then write that rather than .9797$\cdots$.

For each of the limit questions, write "$+\infty$", "$-\infty$", a real number, or –*if none of these*– "DNE".

A4: a **Math-Greek alphabet**: Please write the **two** missing data of lowercase/uppercase/name. Eg:

"iota: ι I A *alpha* β *beta*." You fill in: α: ____ B: ____.

Ω: ____ Υ: ____ H: ____

σ: ____ γ: ____ ξ: ____

lambda ____ rho ____ delta ____ mu ____

b If $\log_B(64) = 4$ then $B =$ ____.

And $\sinh\big(\log(14)\big) =$ ____.

c By l'Hôpital's thm or other means, please compute

$\lim_{x\to 0} \dfrac{\sin(x^2)}{\cos(2x)} =$ ____. $\lim_{x\to 4} \dfrac{20-5x}{\sqrt{12}-\sqrt{3x}} =$ ____.

d $\int \dfrac{t^2}{2^t}\,dt =$ ____. [Write ITOf L:=log(2).]

e Partial-fraction decomposition:

$$\frac{x+1}{x^2+x-2} = \underline{\quad\quad} + \underline{\quad\quad}.$$

f The quotient and remainder polynomials,

$q(x) =$ ____

& $r(x) =$ ____,

satisfy $B = [q\cdot C] + r$ and $\mathrm{Deg}(r) < \mathrm{Deg}(C)$, where $B(x) := x^4+x^3+5$ and $C(x) := x^2+1$.

End of Class-A

Extra. Here are some problems from a make-up **in-class** exam. (See the LaTeX file.)

g Numbers A and B satisfy $\log_3(x) = A\cdot\log(Bx)$. for all $x>0$. So $A =$ ____, $B =$ ____.

h By l'Hôpital's thm or other means, please compute

$\lim_{x\to 4} \dfrac{20-5x}{\sqrt{12}-\sqrt{3x}} =$ ____. $\lim_{x\to\infty} \left[\dfrac{1}{2}+\dfrac{1}{x}\right]^x =$ ____.

i Numbers $C =$ ____ and $D =$ ____ satisfy $\sinh(x)\cdot\cosh(x) = C\cdot\sinh(Dx)$, for all real x.

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