Math 1A (7:30am – 8:20am)
Quiz 7
Fri Nov 21, 2008

SCORE: ___ / 20 POINTS

What day of the month is your birthday ? ___ ___
What are the last 2 digits of your address ? ___ ___
What are the last 2 digits of your zip code ? ___ ___
What are the last 2 digits of your social security number ? ___ ___
[IF YOU DO NOT HAVE A SOCIAL SECURITY NUMBER, USE YOUR STUDENT ID NUMBER]

Graph the function $f(x) = \dfrac{-x-1}{x^2}$ using the full procedure discussed in class.

SCORE: ___ / 20 POINTS

[1] DOMAIN $\{x \neq 0\}$ — 1
DISCONTINUITY AT $x=0$

[2] X-INT: $\dfrac{-x-1}{x^2} = 0 \Rightarrow x = -1$ — $\frac{1}{2}$
$\frac{1}{2}$ y-INT: DNE ($x=0 \notin$ DOMAIN)

[3] $\lim_{x\to 0^-} \dfrac{-x-1}{x^2} = -\infty$ $\left(\frac{-1}{0^+}\right)$
1 $\lim_{x\to 0^+} \dfrac{-x-1}{x^2} = -\infty$ $\left(\frac{-1}{0^+}\right)$
} VA $\frac{1}{2}$ ← STATED OR DRAWN

[4] $\lim_{x\to\infty} \dfrac{-x-1}{x^2} = \lim_{x\to\infty} \dfrac{-1}{2x} = 0$
1 $\lim_{x\to-\infty} \dfrac{-x-1}{x^2} = \lim_{x\to\infty} \dfrac{-1}{2x} = 0$
} HA $\frac{1}{2}$ ← STATED OR DRAWN

[5] $f(x) = -x^{-1} - x^{-2}$

1 $f'(x) = x^{-2} + 2x^{-3} = x^{-3}(x+2)$ — $\frac{1}{2}$
- DNE IF $x=0 \notin$ DOMAIN
- 1 $=0$ IF $x=-2$ POINT $(-2, \frac{1}{4})$

1 $f''(x) = -2x^{-3} - 6x^{-4} = -2x^{-4}(x+3)$ — 2
- DNE IF $x=0 \notin$ DOMAIN
- $=0$ IF $x=-3$ POINT $(-3, \frac{2}{9})$ — 1

[6] N/A

[7]

		−3		−2		0	
x^{-3}	−		−		−		+
$x+2$	−		−		+		+
$-2x^{-4}$	−		−		−		−
$x+3$	−		+		+		+
f'	+	1	+	MAX	−	1	+
f''	+	IP	−	1	−	VA	−
	1		1		1	1	

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