Math 104- Rimmer
Hand in Hw # 6

Name_____
Recit. # _____

Spring 2012

9. The integral

$$\int \frac{9dx}{x^2(x+3)}$$

is equal to

A) $-\frac{9}{x}\ln|x+3|+C$

B) $-\ln|x|+\ln|x+3|-\frac{3}{x}+C$

C) $9\ln\left|x^2(x+3)\right|+C$

D) $-9\ln|x|+9\ln|x+3|-\frac{3}{x}+C$

E) $-\frac{9}{x}+\frac{1}{\sqrt{3}}\arctan\left(\frac{\sqrt{x}}{\sqrt{3}}\right)+C$

F) $\ln|x|-\frac{1}{x}+\ln|x+3|+C$

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Fall 2010

4. Evaluate

$$\int \frac{dx}{x^2 - 2x - 3}$$

(A) $\frac{1}{\sqrt{3}} \arctan(\sqrt{3}x) + C$

(B) $-\frac{1}{x} - \frac{1}{2}\ln(x) - \frac{x}{3} + C$

(C) $-\frac{1}{8}\left(\frac{1}{x+1} + \frac{1}{x-3}\right) + C$

(D) $\frac{1}{2}\ln|x-1| + C$

(E) $\frac{2}{3}\ln|x-3| + \ln|x-1| + C$

(F) $\frac{1}{3}\ln\left|\frac{x-1}{x-3}\right| + C$

(G) $-\frac{1}{(x-3)^2} + \frac{1}{(x+1)^2} + C$

(H) $\frac{1}{4}\ln\left|\frac{x-3}{x+1}\right| + C$

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7. Evaluate $\displaystyle\int_0^1 \frac{4x}{(x+1)(x^2+1)}\,dx.$

(a) $\pi/4 - 1/2$ (b) $\pi/2 - \ln 2$ (c) $32/51$ (d) $\pi/8$ (e) $e/9$ (f) 0.28

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Spring 2009

20. Compute: $\int_2^3 \frac{dx}{x^2 - x}$

a) $\frac{3}{2}$ b) $\frac{4}{3}$ c) $\ln 2$ d) $\ln \frac{4}{3}$ e) $\ln \frac{3}{2}$ f) $\ln 3$

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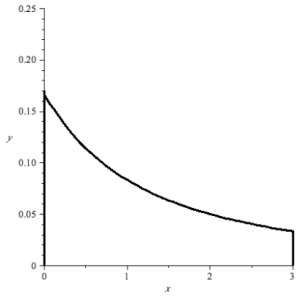
Fall 2007

3. What is the volume of the solid of revolution generated by rotating about the y-axis the region enclosed by the graph of $\dfrac{1}{x^2+5x+6}$, the x-axis and the lines $x=0$ and $x=3$.

a) $2\pi(3\ln 6 - 2\ln 5)$ b) $2\pi(3\ln 6 - 2\ln 2)$ c) $2\pi(3\ln 3 - 2\ln 5)$

d) $2\pi(3\ln 5 - 2\ln 3)$ e) $2\pi(5\ln 2 - 2\ln 5)$ f) $2\pi(5\ln 2 - 3\ln 3)$



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ANSWERS:

Spring 2012 # 9: B

Fall 2010 # 4: H

SPRING 2010 # 7: B

SPRING 2009 # 20: D

FALL 2007 # 3: E