Math 1420 Review Worksheet Spring 2012

Work out each problem. When you finish, find the answer listed on the back page and its corresponding letter. Fill in that letter for each space where you find the question number. Question number 0 is done as an example.

0. Find the derivative. f(x) = 2.7x

Answer: f'(x) = 2.7

1. Evaluate $\int_0^{\pi} t \cos(5t) dt$.

Answer:

2. Evaluate $\int_1^9 \frac{\sqrt{\sqrt{x}+1}}{\sqrt{x}} dx$.

Answer:

3. Evaluate $\int_0^3 \frac{x^3}{\sqrt{x^2 + 9}} dx.$

Answer: ____

4. Evaluate $\int_0^\infty xe^{-5x}dx$.

Answer: ____

5. Find the area bounded by the curves $f(x) = (x-1)^3$ and g(x) = x-1.

Answer: units²

6. Find the volume when the region bounded by $y = \sqrt{x}$, y = 0, and x = 4 is revolved around the line x = 6.

Answer: ___units³

7. Find the volume when the region bounded by $y = 2x - x^2$ and y = 0 is revolved around the x-axis.

Answer: ____units³

8. Find the volume of the solid whose base is bounded by $x^2 + y^2 = 4$ and whose cross-sections perpendicular to the x-axis are squares.

Answer: = ____ units³

16.	Determine if the series $\sum_{n=1}^{\infty} \frac{1-3^n}{5^n}$ converges or diverges. If the series diverges let your answer be 100. If it converges, let your answer be the sum of the series.
	Answer:
17.	Determine if the series $\sum_{n=1}^{\infty} \frac{n^2-3}{n^3+1}$ converges or diverges. If the series diverges let your answer be 200. If it converges, let your answer be 300.
	Answer:
18.	Determine if the series $\sum_{n=4}^{\infty} \frac{1}{n} - \frac{1}{n+3}$ converges or diverges. If the series diverges let your answer be 400. If it converges, let your answer be the sum of the series.
	Answer:
19.	Determine if the series $\sum_{n=1}^{\infty} \frac{(-1)^{n-1} \ln n}{n}$ is absolutely convergent (answer = 500), conditionally convergent (answer = 600), or divergent (answer = 700).
	Answer:
20.	Determine if the series $\sum_{n=2}^{\infty} \frac{\sqrt{n^2-2}}{n(3^n)}$ is convergent (answer = 800) or divergent (answer = 900).
	Answer:
21.	Find the interval of convergence of the power series $\sum_{n=1}^{\infty} \frac{(x-4)^n}{n(5^n)}$. One endpoint is included in the interval and the other is not. The answer is the endpoint which <u>is</u> included.
	Answer:
22.	Find the radius of convergence of the power series $\sum_{n=0}^{\infty} \frac{n!(x+2)^n}{5^n}$
	Answer: $R = \underline{\hspace{1cm}}$

23. Starting with the geometric series, find the power series representation for $\ln(1-x)$. Use this to find the value of the power series $\sum_{n=1}^{\infty} \frac{1}{(3^n)n}$.

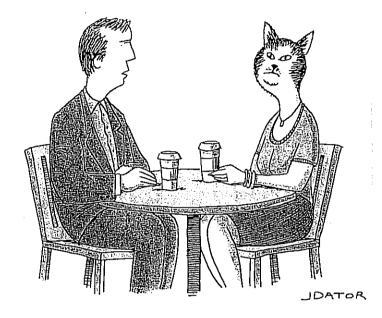
24. Use Maclaurin series to evaluate $\lim_{x\to 0} \frac{x^3}{1+x+\frac{x^2}{2}-e^x}$

Answer: ____

25. Express $x^2 \cos 2x$ as a power series centered at zero. What is the coefficient of the x^8 term?

Answer: ____

Answer	Letter	Answer	Lette
2.7	Y	100	Α
11	В	-5/4	\mathbf{R}
-6	I	43	C
128/3	S	1/25	0
-2/25	0	300	Α
$\ln(2/\sqrt{5})$	${f E}$	600	\mathbf{F}
4600	${f L}$	800	I
500	P	700	\mathbf{T}
-7	S	2	О
0	${f E}$	30	Y
$192\pi/5$	J	-4/45	C
200	P	5	N
900	${f T}$	33/16	${f T}$
-1	L	$(4/5)(8-\sqrt[3]{8})$	U
1/2	K	37/60	R
$25000\pi/3$	I	$18-9\sqrt{2}$	L
400	\mathbf{R}	$16\pi/15$	U
3/2	K	$\ln(3/2)$	P



Fill in the letters to see what the man is saying to the (cat) woman.

 $\frac{7}{0}$ $\overline{1}$ $\overline{2}$

 $\overline{3}$ $\overline{4}$ $\overline{4}$ $\overline{5}$

 $\overline{6}$ $\overline{7}$ $\overline{8}$ $\overline{9}$

 $\overline{10}$ $\overline{11}$ $\overline{12}$ $\overline{13}$

 $\overline{14}$ $\overline{15}$ $\overline{7}$ $\overline{16}$

 $\overline{17}$ $\overline{18}$ $\overline{15}$ $\overline{19}$ $\overline{20}$ $\overline{21}$

 $\overline{23}$ $\overline{24}$ $\overline{25}$ $\overline{9}$ $\overline{7}$ $\overline{16}$ $\overline{13}$