Calculus II - Test 3 Name: _____

November 19, 2002 Recitation Hour: _____

Coordinator: Louis Crane Recitation Instructor: _____

Problems	Score
1	
2	
3	
4	
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10	
Total	

NO CALCULATORS!

1. Evaluate the integral $\displaystyle\int_3^\infty \frac{1}{(x-1)^2}\,dx$

2. Sketch the graph of $r = 4 + 2\sin\theta$ in polar coordinates.

3. Sketch the graph of $x^2 + 4x + y^2 - 8y = 0$.

4. Convert to rectangular coordinates: $r = 2 + \sin\theta$.

5. Find the equation of the locus of all points whose distances from $(2, 0)$ and $(-2, 0)$ add up to 10.

6. Find the area inside the curve $r = 2 + 2\sin\theta$ in the wedge between $\theta = 0$ and $\theta = \dfrac{-\pi}{6}$.

7. Find the slope of the tangent line of the curve $\begin{cases} y = t^2 - t \\ x = e^t \end{cases}$ at the point $(e, 0)$.

8. Find the limit of the sequence $\dfrac{\cos n}{n^2}$.

9. Sum the series $3 + \frac{3}{2} + \frac{3}{4} + \frac{3}{8} \ldots$

10. Find the first 3 terms of the Taylor series for $y = \sin x$ at $\frac{\pi}{2}$.