

King Fahd University of Petroleum and Minerals
Math Dept
Test 2 Math 102-2
Sum 2001

Instructions:

Show all of your work

All questions have equal grades

Question #	1	2	3	4	5	6	7	8	9	10	Total
Grade											

Name: _____ I.D.#: _____ Serial #: _____

1. Use the shell method to set up the integral to find the volume generated if the region bounded by the graphs $y = 4 - x^2$, and $y = 0$, revolves about the line $x = 3$.

2. Find the surface area if the parametric curve $x = 2 \cos t$, $y = 2 \sin t$, $0 \leq t \leq \pi$ is revolving about the x axis.

3. $\int \operatorname{sech} x dx$

4. $\int_0^{\frac{2}{4}} \sin \sqrt{x} \, dx$

5. $\int \cos x \sin x \sqrt{1 - \sin^4 x} \, dx$

6. $\int \frac{x^2 - x + 1}{x(x-1)^2} dx$

7. $\int_0^{\frac{\pi}{6}} \frac{\cos x}{\sqrt{1 - 2\sin x}} dx$

8. Find the area between the curve $y = \frac{1}{x^2 + 1}$ and the x axis, $x = 0$ is revolving about the x axis.

9. Determine if the sequence $1 - \frac{2}{\sqrt{n}}$ diverges or converges, if so find its limit.

10. $\int \sin^2 x \cos^3 x dx$