King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Math 102.13 and 17 Quiz II Second Semester 2006-2007 (062)

ID #: _____ NAME: _____

Serial # _____ Section #: _____

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1. Set up, but do not evaluate, an integral for the volume obtained by rotating the region bounded by the cures $y = \dfrac{1}{1+x^2}, y = 0, x = 0, x = 2$, about $x = 2$.

2. Find the area bounded by $y = x^2$, the tangent line to this parabola at $(1, 1)$ and the x-axis.

3. The cylindrical shell in the figure is rotated about the x-axis. Find the volume of the solid obtained.

4. Evaluate $\displaystyle\int_1^2 \frac{x^2 + 5x + 4}{x + 1}\, dx$.

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1. Set up, but do not evaluate, an integral for the volume of the solid obtained by rotating the region bounded by $y = x, y = 4x - x^2$ about $x = 7$.

2. Find the area bounded by the curves $y = x^2$, and $y = \dfrac{2}{x^2 + 1}$.

3. If $\displaystyle\int f(x)dx = \frac{x}{x+1} + C$, find $f(x)$.

4. Find $\displaystyle\int \frac{\ln\sqrt{x}}{x}\, dx$.

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1. Set up, but do not evaluate, an integral for the volume of the solid obtained by rotating the region bounded by the curves $y = \ln x, y = \ln x, y = 0, x = 2$, about $x = e^2$.

2. Find the area bounded by the curves $4x + y^2 = 12$ and $x = y$.

3. Find the volume of the washer when the shaded region rotates about x-axis.

4. Evaluate $\displaystyle\int \frac{dx}{\sqrt{x^4 - 1}}$.