Math 180 Name _____
Fall, 2008

Homework #18
Due Monday, November 24
No late papers accepted! No excuses!

1. Evaluate the integrals.

a) $\int_0^{\pi/2} \frac{3\sin x \cos x}{\sqrt{1+3\sin^2 x}}\,dx$

b) $\int_1^3 \frac{\left(\ln(v+1)\right)^2}{v+1}\,dv$

c) $\int x 3^{x^2}\, dx$

d) $\int \frac{dy}{y\sqrt{4y^2-1}}$

e) $\int e^x \sec^2\left(e^x - 7\right) dx$

2. Find the area between the curve $y = \frac{2\ln x}{x}$ and the x-axis from x = 1 to x = e.

3. Find the area of the regions enclosed by $x + y^2 = 3$ and $4x + y^2 = 0$.

4. Solve the initial value problem.

$$\frac{d^2y}{dx^2} = \sec^2 x, \quad y(0) = 0, \quad y'(0) = 1$$

5. Find the area of the region enclosed by $\sqrt{x} + \sqrt{y} = 1$, x = 0, and y = 0.