Math 107: Fall 2008 Final Exam Solution Corrections

6.) The limits of integration should be $\frac{\pi}{12}$ and $\frac{5\pi}{12}$. Thus we have

$$A = 4\int_{\pi/12}^{5\pi/12} \frac{1}{2}[4\sin^2(2\theta) - 1]d\theta.$$

8.) Since $r = y/2$, the volume of a slice of fuel is

$$\pi(\frac{y}{2})^2 dy = \frac{\pi}{4}y^2 dy.$$

This gives

$$W = \int_0^{20} 10\pi y^2(20 - y)dy.$$

9.c)

$$|v(10)| = \sqrt{1^2 + (-20)^2 + (100)^2} = \sqrt{10401}.$$