

Math 181
Fall, 2009

Name _____

Homework #4

Due Wednesday, September 9

No late papers accepted! No excuses!

1. A vertical right circular cylindrical tank measures 30 feet high and 20 feet in diameter. It is full of kerosene weighing 51.2 pounds per cubic foot. How much work does it take to pump the kerosene to the level of the top of the tank?

2. A spherical tank of radius 8 feet is half full of oil that weighs 50 pounds per cubic foot. Find the work required to pump oil out through a hole in the top of the tank.

3. Find the area of the surface formed by revolving the graph of $f(x) = x^2$ on the interval $[0, \sqrt{2}]$ about the y-axis.