

Name: \_\_\_\_\_

142 Quiz 3

1. Consider a tank in the shape of a (horizontally oriented) right circular cylinder of radius 4m and length 10m. A spout of height 1m is attached to the top of the tank. The tank is filled with a fluid of density  $\rho$  kg/m<sup>3</sup> to the height of 3m in the tank. Draw pictures, including a typical slab and a cross-section of the tank. Find an integral expression for the work required to pump the tank empty through the spout.