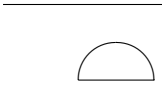
Name _____

Homework 10
Section 8.5

1. (4) A freight elevator weighing 2000 pounds is supported by a 22-ft-long cable that weighs 15 lb per linear foot. Find the amount of work required to lift the elevator from the first to the third floor (assume 10 feet between floors).

2. (4) The same freight elevator is now loaded with 1500 pounds of freight. Find the amount of work required to lift it from the first to the *second* floor.

3. (6) A gas station is going to construct an underground tank in the shape of the top half of a sphere of radius 8 ft. The tank will be buried so that the top is 12 feet below ground level (a cross section is shown below). Find the amount of work required to pump a full tank of gas out of the tank. (Gasoline weighs 42 lb/ft^3.)



4. (6) Just before construction of the new tank begins, a worker notices that perhaps it would be better to build the tank upsidedown of what was planned. That is, to build it as the *bottom* half of a sphere. How much work is required to pump out a full tank of gas in this new configuration?