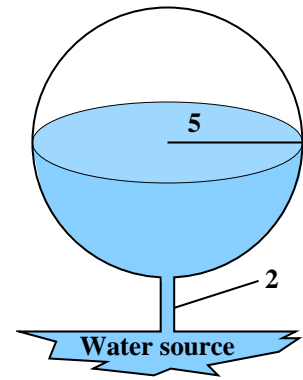


**Problem statement** Water is pumped into a spherical tank of radius 5 ft from a source located 2 ft below a hole at the bottom (figure to the right). The density of water is  $64.2 \text{ lb/ft}^3$ .

- a) Calculate the work required to fill the tank.
- b) Calculate the work  $F(h)$  required to fill the tank to a height  $h$  ft from the bottom of the sphere.
- c) Graph the function  $F(h)$  for  $0 \leq h \leq 10$ .



(From problems #41 and #42 of the Chapter Review Exercises in Chapter 6 of the text.)