1. A particle is moved along the x-axis by a force that measures $15/(x + 2)^2$ pounds at a point $x$ feet from the origin. Find the work done in moving the particle from the origin to a distance of 10 feet.

2. A spring has a natural length of 20 cm. If a 50-N force is required to keep it stretched to a length of 30 cm, how much work is required to stretch it from 20 cm to 25 cm? (Use the fact that Hooke’s Law is $f(x) = kx$.)
3. Consider a 20-ft chain hanging from a winch 20 feet above ground level. Find the work done by the winch in winding up the entire length of chain, if the chain weighs 4 lb/ft.

4. The tank shown to the right is full of water. Find the work required to pump water out of the outlet. You may assume that the triangular sides are isosceles. (Use the fact that the density of water is 1000 kg/m$^3$)
5. The right cone-shaped tank to the right is filled with water to a height of 5m. Find the work required to pump all the water out of the tank. (Use the fact that the density of water is 1000 kg/m³)

![Cone-shaped tank diagram]

6. The hemispherical tank shown is filled with gasoline. Given that it has a radius of 9 ft and that gas weighs 42 lb/ft³, find the work required to pump part of the gasoline out of the tank: Leave a depth of 2 ft of gas at the bottom of the tank.

![Hemispherical tank diagram]