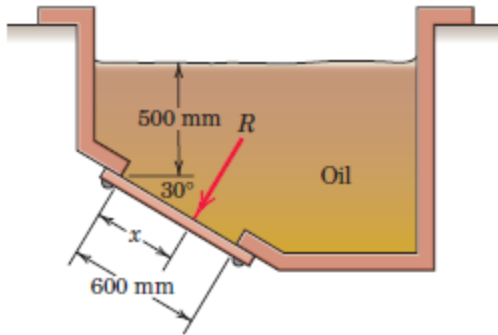


Chapter 5, Problem 5/202

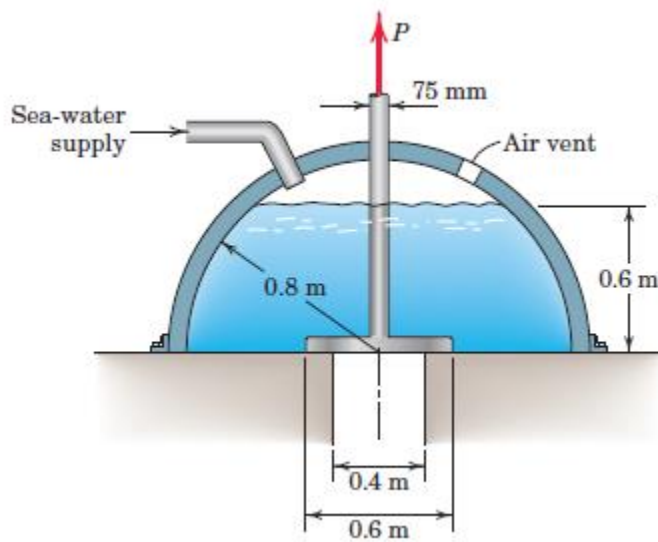
A vertical section of an oil sump is shown. The access plate covers a rectangular opening which has a dimension of 400 mm normal to the plane of the paper. Calculate the total force R exerted by the oil on the plate and the location x of R . The oil has a density of 900 kg/m^3 .



Chapter 5, Problem 5/196

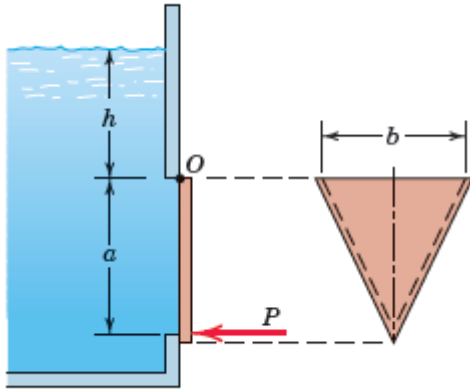
When the sea-water level inside the hemispherical chamber reaches the 0.6-m level shown in the figure, the plunger is lifted, allowing a surge of sea water to enter the vertical pipe. For this fluid level (a) determine the average pressure σ

supported by the seal area of the valve before force is applied to lift the plunger and (b) determine the force P (in addition to the force needed to support its weight) required to lift the plunger. Assume atmospheric pressure in all airspaces and in the seal area when contact ceases under the action of P .



Chapter 5, Supplemental Problem 5/151

A flat plate seals a triangular opening in the vertical wall of a tank of liquid of density ρ . The plate is hinged about the upper edge O of the triangle. Determine the force P required to hold the gate in a closed position against the pressure of the liquid.



Chapter 5, Problem 5/211

The fresh-water side of a concrete dam has the shape of a vertical parabola with vertex at A . Determine the position b of the base point B through which acts the resultant force of the water against the dam face C .

