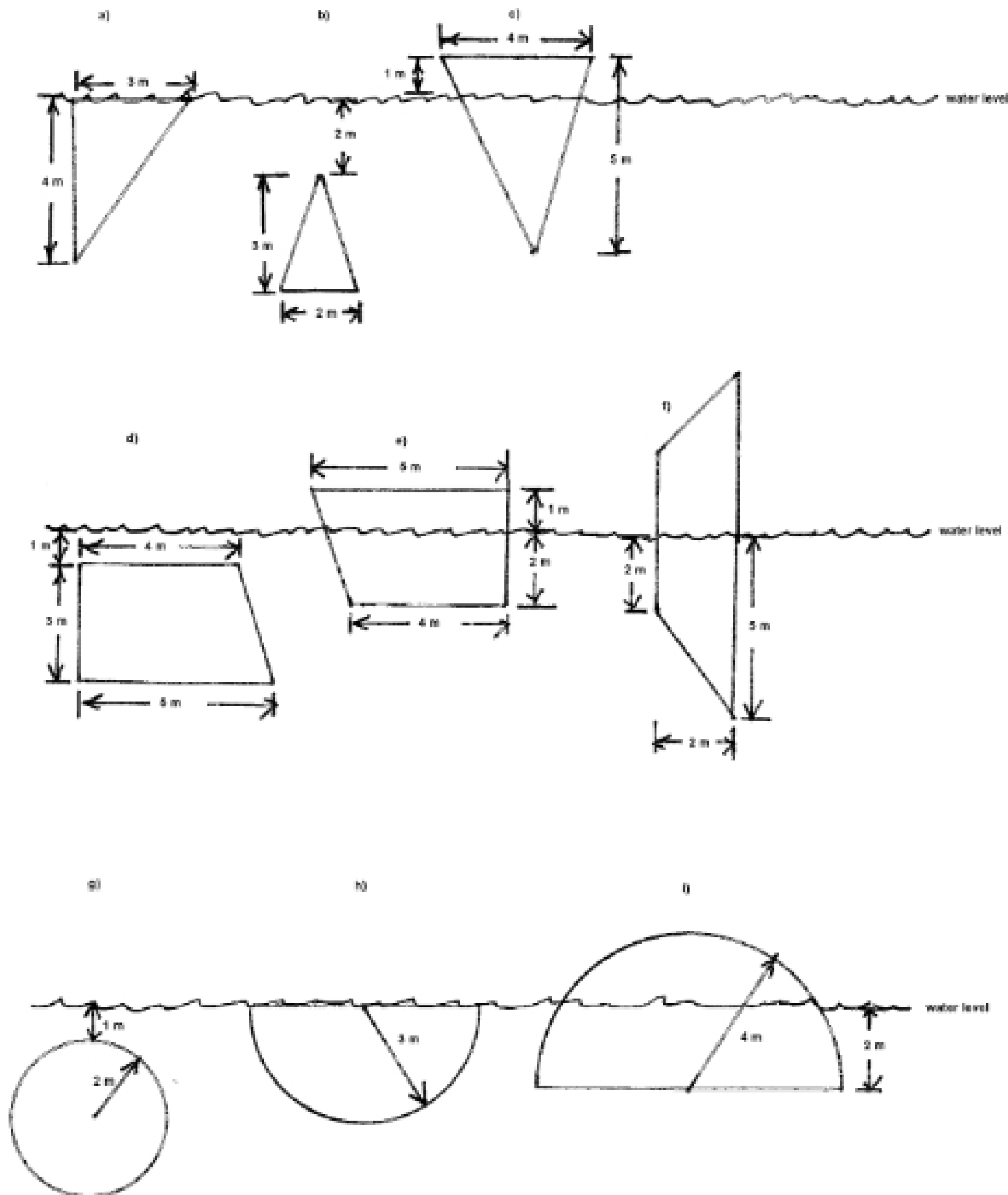
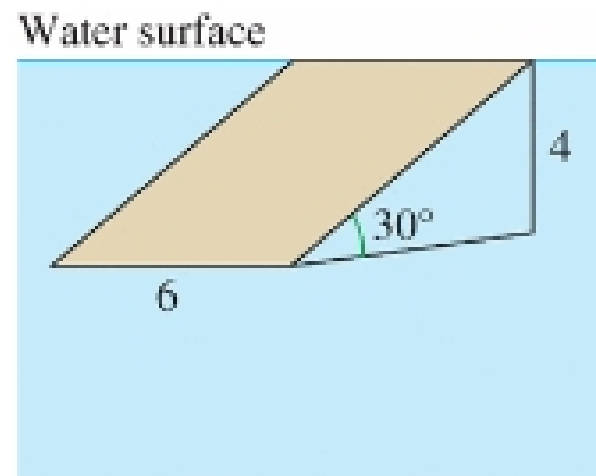


## Homework 11 – Fluid Pressure and Force

- 1) A plate in the shape of an isosceles triangle with base 1m and height 2m is submerged vertically in a tank of water so that its vertex touches the surface of the water. Calculate the fluid force on one side of the plate.
- 2) Repeat exercise 1, but assume that the vertex is located 3m below the surface of the water.
- 3) For each of the plates shown, a-i, set up an integral to compute the fluid force on one face of the plate which is submerged in water.



- 4) The figure shows a ramp inclined at  $30^\circ$  leading into a swimming pool. Calculate the fluid force on the ramp.



- 5) The Three Gorges Dam on China's Yangtze River has height 185 m. Calculate the force on the dam assuming that the dam is a trapezoid of base 2000 m and upper edge 3000 m, inclined at an angle of  $55^\circ$  to the horizontal.



- 6) The figure shows the wall of a dam on a water reservoir. Use the Trapezoid Rule and the width and depth measurements in the figure to estimate the fluid force on the wall.

