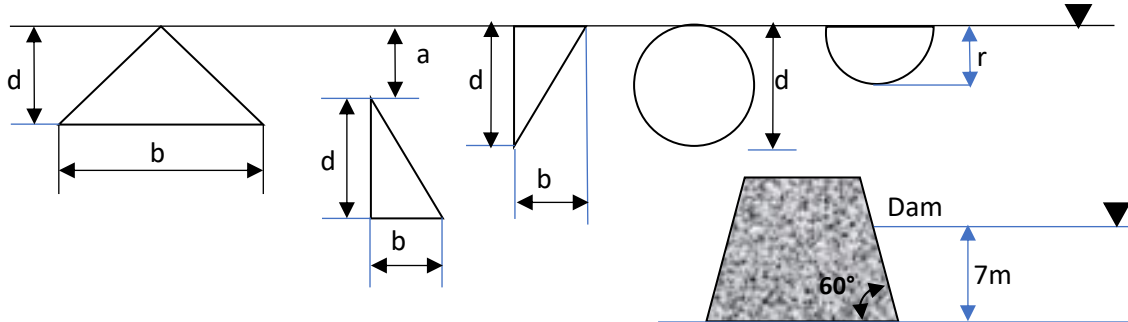


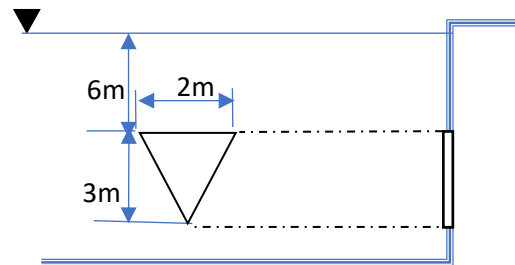
### Tutorial N°3 Fluid statics (2)

1. Given the submerged surfaces normally to the free surface, shown in the figure. Find the expression of the depth of barycenter  $h_{cg}$  and the center of application of the force  $h_{cp}$ .



2. A 20 m long dam (perpendicularly to sheet plane) retains a height of 7m of water. Calculate the total force  $F_R$  that acts on the dam as well as the depth of its center of application  $h_{cp}$ .

3. A triangular gate is mounted on the side of a large tank with an angle of  $90^\circ$  with the free surface. Calculate the total force  $F_R$  acting on the door as well as the depth of its point of application  $h_{cp}$ .



4. Repeat problem 3 for a circular door of diameter 1m and a depth of 1.5 m with an inclination of  $60^\circ$  with the free surface.

5. A circular door ABC with 4 m diameter is articulated at B. Calculate the force  $F$  required to keep the door closed if the height of the water level is 6m.

