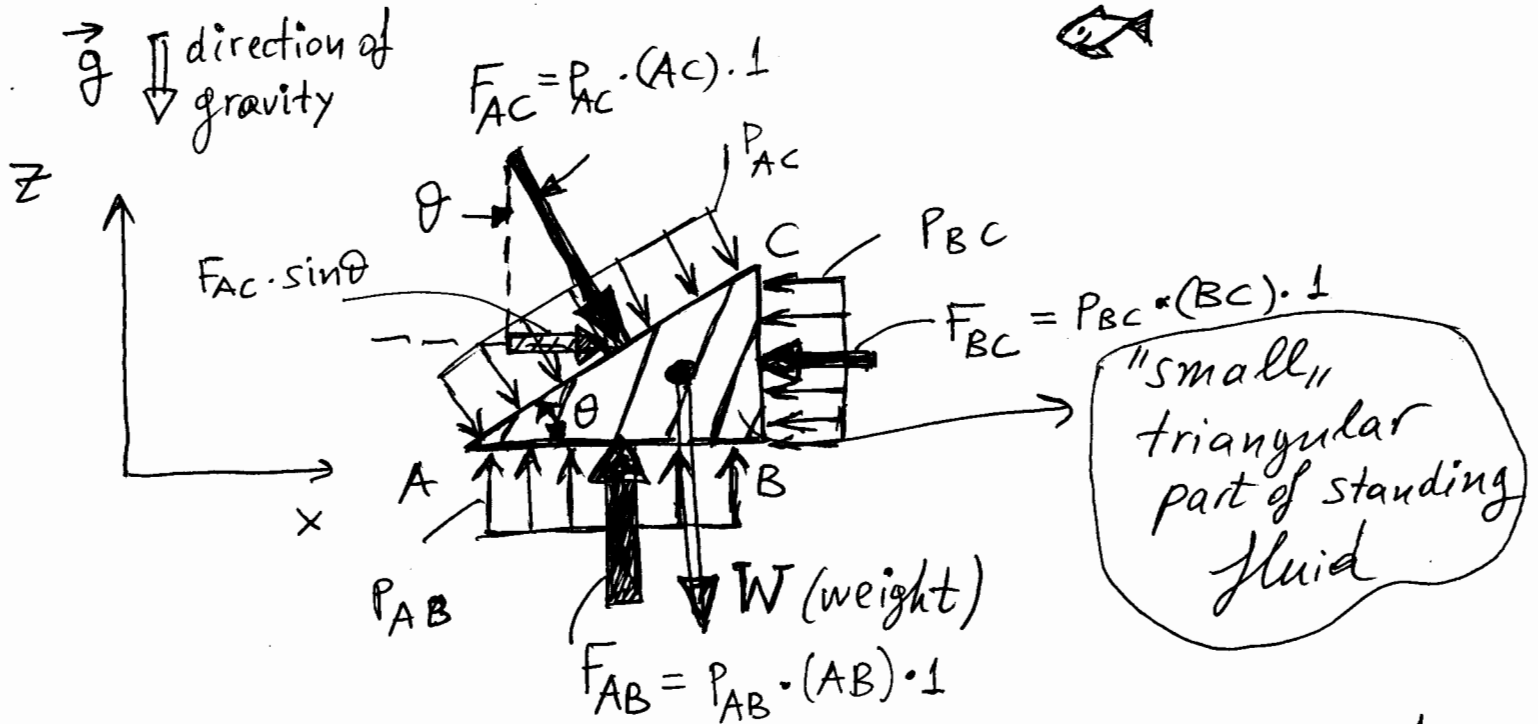


# Does pressure depend on direction?

Free surface



$$\sum F_x = 0 \Rightarrow P_{AC} \times AC \times 1 \times \sin \theta - P_{BC} \times BC \times 1 = 0 \quad (1)$$

1 = dimension normal to paper

This is a 2-D problem, so everything is per unit "width" (dimension normal to paper)

$$\text{But } (AC) \cdot \sin \theta = (BC) \quad (2)$$

$$(1) \& (2) \Rightarrow \underline{P_{AC} = P_{BC}}$$

From  $\sum F_z = 0$  can also be shown that

$$\underline{P_{AB} = P_{AC}}$$

SO:  $\underline{P_{AB} = P_{AC} = P_{BC}} \Rightarrow$  pressure is independent of direction