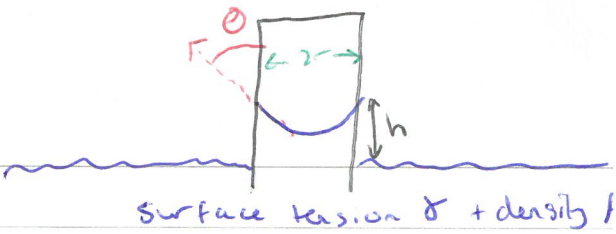
Capillary action



Finding an expression for h, the height at which a liquid will rise to inside of an open tube placed in contact with the surface of a liquid

Opposing forces: Force due to gravity and force due to surface tension

Force due to gravity: $mg = \rho \times \pi r^2 h \times g$

Force due to surface tension: $\gamma L \cos\theta = \gamma \cos\theta \times 2\pi r$

$\therefore \quad \rho \pi r^2 h g = 2\pi r \cos\theta \gamma$

$$h = \frac{2\gamma\cos\theta}{\rho g r}$$