

Develop a Winning Case Strategy

1



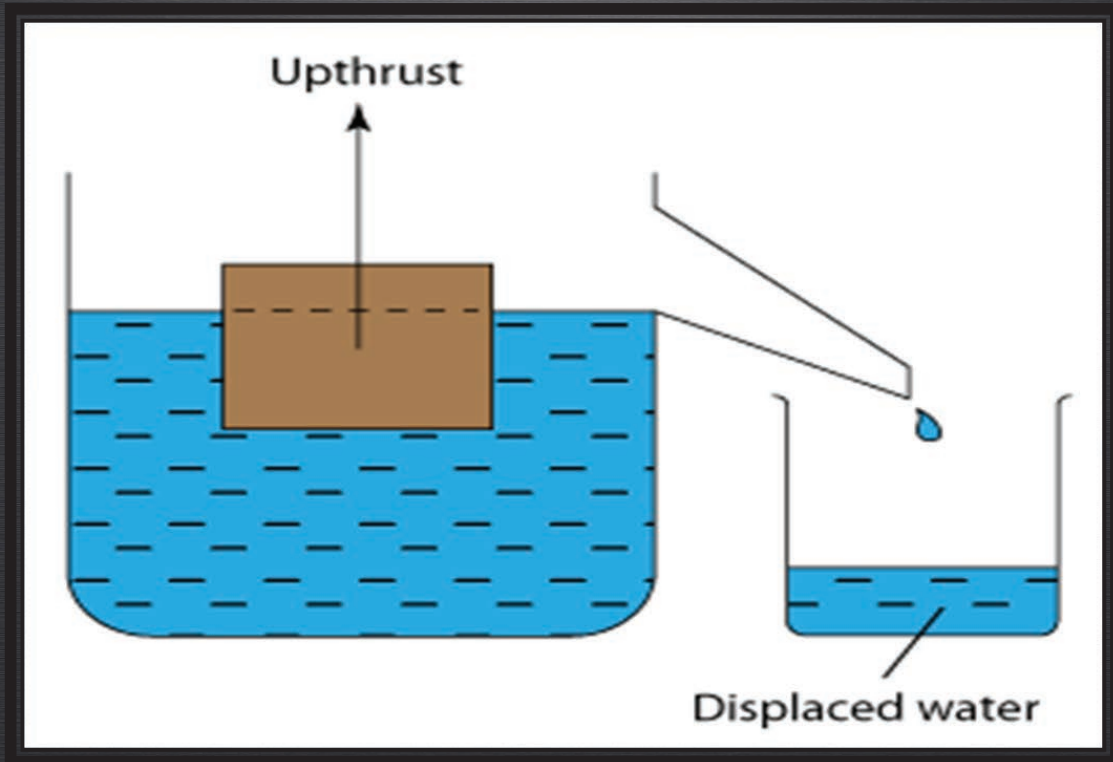
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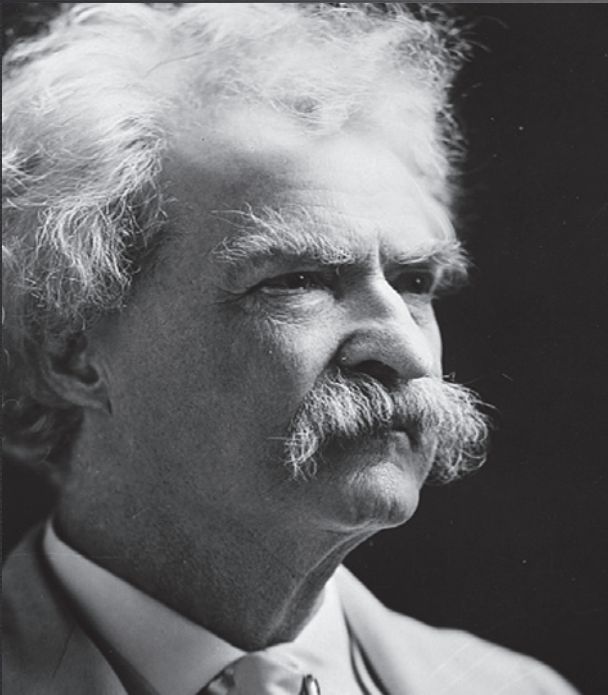
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Pressure function in the fluid $P(x, y, z) = \rho g(H - y)$
 \vec{dF} = Force exerted on the body by the fluid at the infinitesimal surface area \vec{dA}
 Let \vec{dF}_y be the y-component of \vec{dF} and $\vec{P} = \rho g(H - y)\hat{j}$
 So, $\vec{dF}_y = -(\vec{dA} \cdot \vec{P})\hat{j}$
 Magnitude of net buoyant force
 $= \oint_A \|\vec{dF}_y\|$
 $= \oint_A -(\vec{dA} \cdot \vec{P})$
 $= \oint_A (-\vec{P}) \cdot \vec{dA}$
 $= \oint_V \nabla \cdot (-\vec{P}) d\tau$ (Divergence Theorem)
 $= \oint_V (\nabla \cdot (-\rho g(H - y)\hat{j})) d\tau$
 $= \oint_V (\nabla \cdot (\rho g(y - H)\hat{j})) d\tau$
 $= \oint_V \rho g d\tau$
 $= \rho g V = \text{weight of displaced fluid}$

4



5



“It is easier to
manufacture seven
facts than one
emotion.”

6

Also available as part of the eCourse

[Answer Bar: Taking Your Car Crash Case to Trial](#)

First appeared as part of the conference materials for the
2021 Winning at Deposition: Skills and Strategy session
"Developing a Winning Strategy"