**How do you find the pressure in a fluid?**

**Order the sentences**

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| You'll often see this formula with the h and the g swapping places like this,*(sketch by the author)*$$P=dgh$$ |
| The weight of the column of water above the can of beans is creating pressure at the top of the can. |
| Consider a can of beans in a pool as seen in the diagram. |
| According to the definition of pressure $P=\frac{F}{A}$ |
| But $m\_{w}$can be written in terms of the density and volume of the water.Since density $d=\frac{m}{V}$, we can solve this for the mass of the water column $m\_{w}=d\_{w}V\_{w}$ |
| We know that the volume of a cylinder is $V=Ah $where A is the area of the base of the cylinder and h is the height of the cylinder. We can plug in Vw=Ah for the volume of water into the previous equation and cancel the areas. |
| The force F is the weight of the column of water above the can of beans. The weight of the column of water is $W=m\_{w}g$ |
| So $P=\frac{d\_{w}V\_{w}g}{A}$ |
| So this formula would work equally well for any object in any liquid. |
| We get $P=\frac{d\_{w}Ahg}{A}=d\_{w}hg$ |

**To sum up**

 Static fluid pressure does NOT depend on the shape, total mass, or surface area of the liquid.

**Pressure =**$ \frac{weight}{area}=\frac{mg}{A}= \frac{dVg}{A}=dgh$

 

Volume = hA

Weight = mg

d = m / V

*(sketch by the author)*

**Check the units!**

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| **Pressure = density x g x depth** **[N/m2] = [ ] x [ ] x [ ]**  |