



# Liquid Pressure

$$P = h\rho g$$

$h = \text{depth}$  (m)

$\rho = \text{density}$  ( $\text{kg m}^{-3}$ )

$g = \text{gravitational Field Strength}$  ( $\text{N kg}^{-1}$ )

## Pressure in Liquid

$$P = P_{atm} + h\rho g$$

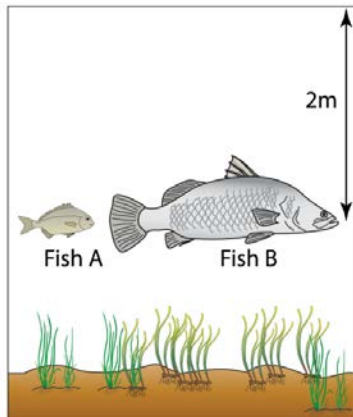
$h = \text{depth}$  (m)

$\rho = \text{density}$  ( $\text{kg m}^{-3}$ )

$g = \text{gravitational Field Strength}$  ( $\text{N kg}^{-1}$ )

$P_{atm} = \text{atmospheric Pressure}$  (Pa or  $\text{N m}^{-2}$ )

### Example 1



The diagram shows 2 fishes in water. The density of the water is  $1025 \text{ kg/m}^3$ . The surface area of fish A is  $300\text{cm}^2$  and the surface area of fish B is  $2000\text{cm}^2$ . Find

- the pressure exerted by the water on fish A.
- the pressure exerted by the water on fish B.
- the force exerted by the water on fish A.
- the force exerted by the water on fish B.

[a. 20500Pa; b. 20500Pa; c. 615N; d. 4100N]

[\[Step by step solution\]](#)

### Example 2

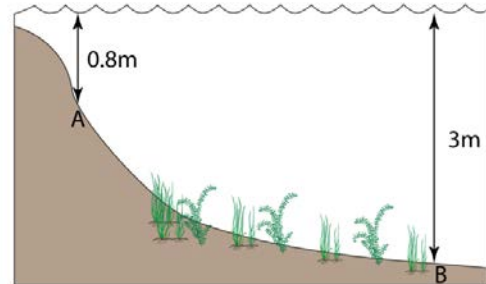


Figure to the left shows the cross section of a sea near a seaside. Find the difference of the pressure between point A and point B. [Density of seawater =  $1050\text{kg/m}^3$ ]

[23,100 Pa]

[\[Step by step solution\]](#)

### Example 3

Find the pressure at a depth of 20 m in water when the atmospheric pressure is 100000 Pa. The density of water is  $1000 \text{ kg/m}^3$ .

[300,000Pa]

[\[Step by step solution\]](#)