

Introduction to graphing (Final result)

"A tank filled with water"

(b) When the depth of water is 2.2m, I estimate pressure to be 1,860 Pa

(c) When the pressure of the water is 2700 Pa, I estimate its depth to be 3.24 m.

(d) The pressure due to water at its base is directly proportional to the depth of the water.

(e) Points used to determine gradient $(x_1, y_1) = (0, 0)$
 $(x_2, y_2) = (3.6, 3000)$

$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} \\ &= \frac{3000 - 0}{3.6 - 0} \\ &= 833.333 \end{aligned}$$

$$\begin{aligned} \text{unit for gradient} &= \frac{\text{unit on y axis}}{\text{unit on x axis}} \\ &= \frac{\text{Pa}}{\text{m}} \\ &= \text{Pa} \cdot \text{m}^{-1} \end{aligned}$$

the gradient for the water is $833\frac{1}{3} \text{ Pa} \cdot \text{m}^{-1}$

(f) dependent axis = P
independent axis = d
gradient = $833\frac{1}{3} \text{ Pa} \cdot \text{m}^{-1}$
intercept = 0 Pa

$$\begin{aligned} y &= mx + c \\ P &= 833\frac{1}{3} d + 0 \end{aligned}$$

the mathematical relationship for the water is,
 $P = 833\frac{1}{3} d$