

Exp 7 Measuring g at Bzu using least fit square method



$$L = S + \frac{d}{2}$$

time required by the pendulum to finish one oscillation

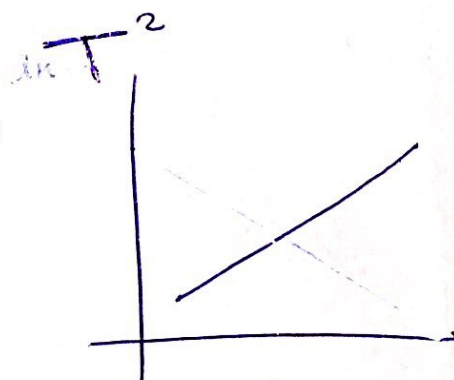
$$T(\text{period}) = 2\pi \sqrt{\frac{L}{g}} \quad \cdot \text{only when } \theta \text{ is small } < 15^\circ$$

$$T^2 = 4\pi^2 \left(\frac{L}{g} \right) \cdot m$$

$$m = (\text{best slope}) = \frac{4\pi^2}{g}$$

$$\frac{\Delta g}{g} = \frac{\Delta m}{m}$$

- finding the value of the slope m , the y -intercept and their uncertainties using the least square fit method



$$\text{best slope} = \frac{4\pi^2}{g}$$

$$m = \frac{4\pi^2}{g}$$

$$g = \frac{4\pi^2}{m}$$

Alaa Etaiwi