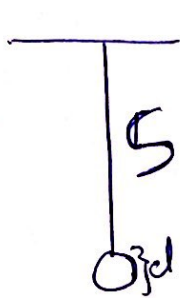


Exp 7 Measuring g at BZU using least fit square method



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

time required by the pendulum to finish one oscillation

$$T \text{ (period)} = 2\pi \sqrt{\frac{L}{g}}$$

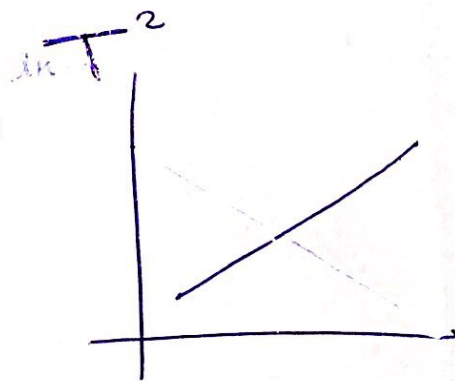
• only when θ is small $< 15^\circ$

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

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

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

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



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

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

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

Alaa Etawi