

Physics Practical

- Limitation
 - Two/Three readings are not enough to make a valid conclusion
- Improvement
 - Take more readings and plot a graph
 - This T can be used for all experiments
- Limitation
 - The value of a (physical quantity) is small so the % uncertainty of the quantity is large
- Improvement
 - Take ten oscillations and average.
- Limitation
 - The movement/oscillation is affected by wind movement
- Improvement
 - Use wind shield.
- Limitation
 - difficult to determine the start and end of movement because it is too fast.
- Improvement
 - Use video camera with slow motion feature and timer
- Limitation
 - difficult to release without applying force
- Improvement
 - Use a mechanical hand
- Limitation
 - Parallax error
- Improvement
 - mirror scale. use a set square ^{against} ~~with~~ rule

→ Limitation

→ Oscillation does not occur in one plane

→ Improvement

→ Trap the apparatus in such a way as to make sure the oscillation only occurs in one plane.

→ Limitation

→ Difficult to maintain (something) at a (particular position)

→ Improvement

→ Use a clamp.

→ Limitation

→ Friction at pulley

→ Improvement

→ Apply oil to lubricate the pulley

→ Limitation

→ Resistance of contacts (connecting wire)

→ Improvement

→ Clean the contacts (connecting wire)

⇒ Uncertainty

$$1. \ x = y + z$$

$$\Delta x = \Delta y + \Delta z$$

$$2. \ x = y - z$$

$$\Delta x = \Delta y + \Delta z$$

$$3. \ x = yz$$

$$\frac{\Delta x}{x} = \frac{\Delta y}{y} + \frac{\Delta z}{z}$$

$$4. \ x = \frac{y}{z}$$

$$\frac{\Delta x}{x} = \frac{\Delta y}{y} + \frac{\Delta z}{z}$$

$$5. \ x = y^2 z^3$$

$$\frac{\Delta x}{x} = \frac{2\Delta y}{y} + \frac{3\Delta z}{z}$$

$$8. \ x = \frac{y^5}{z^8}$$

$$\frac{\Delta x}{x} = \frac{5\Delta y}{y} + \frac{8\Delta z}{z}$$

$$6. \ x = \sqrt{y} \times z$$

$$\frac{\Delta x}{x} = \frac{0.5 \Delta y}{y} + \frac{\Delta z}{z}$$

$$7. \ x = Py^2 \times \sqrt[3]{z}$$

(P is a constant)

$$\frac{\Delta x}{x} = \frac{2\Delta y}{y} + \frac{1}{3} \frac{\Delta z}{z}$$