

Physics practical (*manipulation of data*)

(write the solutions in your graph books)

1. The results below were obtained in an experiment to determine the mass, M_0 of a metre rule.

a) $l_0 = 63.0$ cm

$x(\text{cm})$	$y(\text{cm})$
5.0	49.8
10.0	50.9
15.0	52.0
20.0	53.1
25.0	54.5
30.0	55.4

- Draw table including values of $\frac{1}{x}$, $(y - x)$ and $(l_0 - y)$.
- Plot a graph of $(y - x)$ against $(l_0 - y)$.
- Find the slope, S of your graph.
- Calculate the mass, M_0 of the metre rule from the expression.

$$M_0 = 50 \times S$$

2. The results below were obtained in an experiment to determine the focal length f , the curved mirror.

a) $f_1 = 10.0$ cm

b)

$x(\text{cm})$	$y(\text{cm})$
20.0	19.8
24.0	17.1
28.0	15.6
32.0	14.5
36.0	13.8
40.0	13.3

Draw table including values $\frac{y}{x}$ and xy .

- Plot a graph of y against $\frac{y}{x}$.
- Find the slope, S , of your graph.
- Read and record the intercept, y_0 on the y - axis.
- Find the value of, f_2 from the expression,

$$f_2 = \frac{S + y_0}{2}$$

g) Find the average value, f , of f_1 and f_2 .

END