

C SSC SOUTHERN ZONE
PHYSICS 2X MARKING SCHEME 2026

1 (a) The length of C mark = 50 cm. (01 mark)

(b) Table of results

Y (cm)	5	10	15	20	25	35
X (cm)	22.5	20	17.5	15	12.5	7.5

(01 mark)
(01 mark)

(c) The graph of y (cm) against x (cm)

(d) The graph is straight line with negative slope. (true y-intercept.) (01 mark)

(e) y-intercept is 30 cm from the graph. (01 mark)

(f) The value of the y-intercept is the position of the centre of gravity of the metre rule, C.

$$\text{ie } y = -x \left(\frac{m+20}{m} \right) + C$$
$$\downarrow \quad \downarrow \quad \downarrow \quad \downarrow$$
$$y = m X + C \quad (01 \text{ mark})$$

(g) Slope = $\frac{\Delta y \text{ (cm)}}{\Delta x \text{ (cm)}}$

$$= \frac{(140 - 4)}{(5 - 23.25)} \quad (01 \text{ mark})$$

1

(3)

$$= -1.97$$

$$\approx -2$$

$\therefore$ The slope of the graph

is -2.

(01 mark)

(4)

from the graph

$$\text{Slope} = -\left(\frac{m + 100}{m}\right) \quad (0.5 \text{ mark})$$

$$-2 = -\left(\frac{m + 100}{m}\right)$$

$$+2m = m + 100$$

$$2m - m = 100$$

$$m = 100 \text{ g}$$

$\therefore$ The mass of the metre rule

is 100 g,

(01 mark)

(2)

The principle of moment states that "For the body to be in equilibrium the sum of clockwise moments should be equal to the sum of anticlockwise moments."

(01 mark)

(j)

Sources of error

- Parallax error

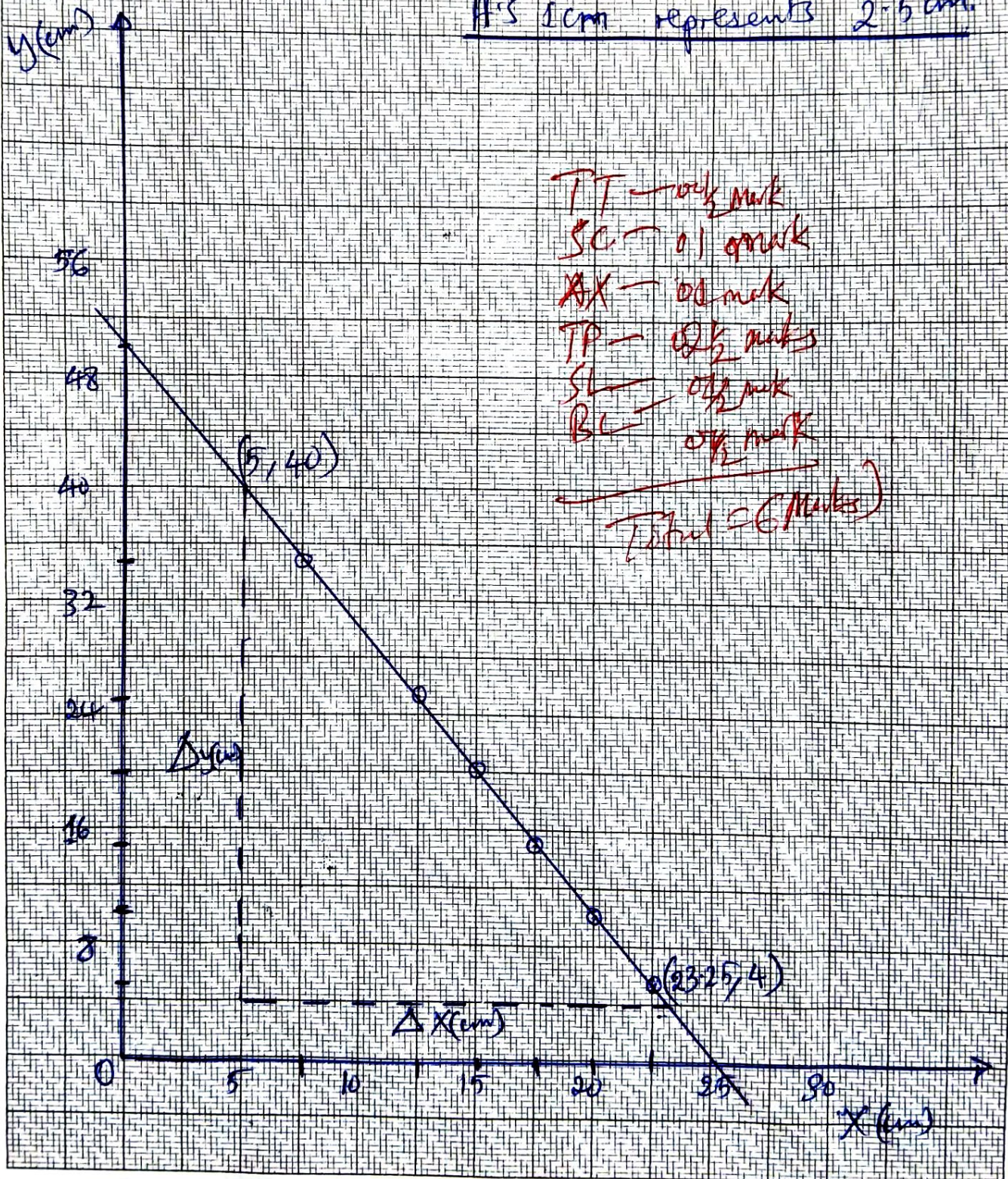
- Taking readings before a metre rule is balanced properly. (01 mark)

(k)

The aim of the experiment is to determine the mass of the metre rule. (01 mark)

THE GRAPH OF y (cm) AGAINST x (cm)

Scale V.S: 1cm represents 4 cm
H.S: 1cm represents 2.5 cm.



(a) The table of results

Number of images (n)	Angle between mirrors θ	$\frac{360}{\theta}$
3	90°	4
4	72°	5
5	60°	6
7	45°	8
11	30°	12

2 marks

2 marks

2 marks

2 marks

2 marks

Total 10 marks

(b) The graph (behaviour)

(c)

$$(i) \text{ slope } G = \frac{\Delta n}{\Delta \frac{360}{\theta}} \quad (1 \text{ mark})$$

$$= \frac{(10 - 2)}{(11 - 3)} \quad (1 \text{ mark})$$

$$= \frac{8}{8}$$

$$= 1.$$

$\therefore$ The slope of the graph is 1. (1 mark)

(ii) The intercept, $p = -1$. (1 mark)

(iii) The equation will be as follows

$$n = \frac{360}{\theta} + p \quad (1 \text{ mark})$$

$$n = 1 \left(\frac{360}{\theta} \right) - 1 \text{ or } \boxed{n = \frac{360}{\theta} - 1}$$

(d)(i) The number of images becomes infinity (1 mark)

2 (d) (i) i.e. $n = \frac{360}{0}^\circ$

$= \infty$

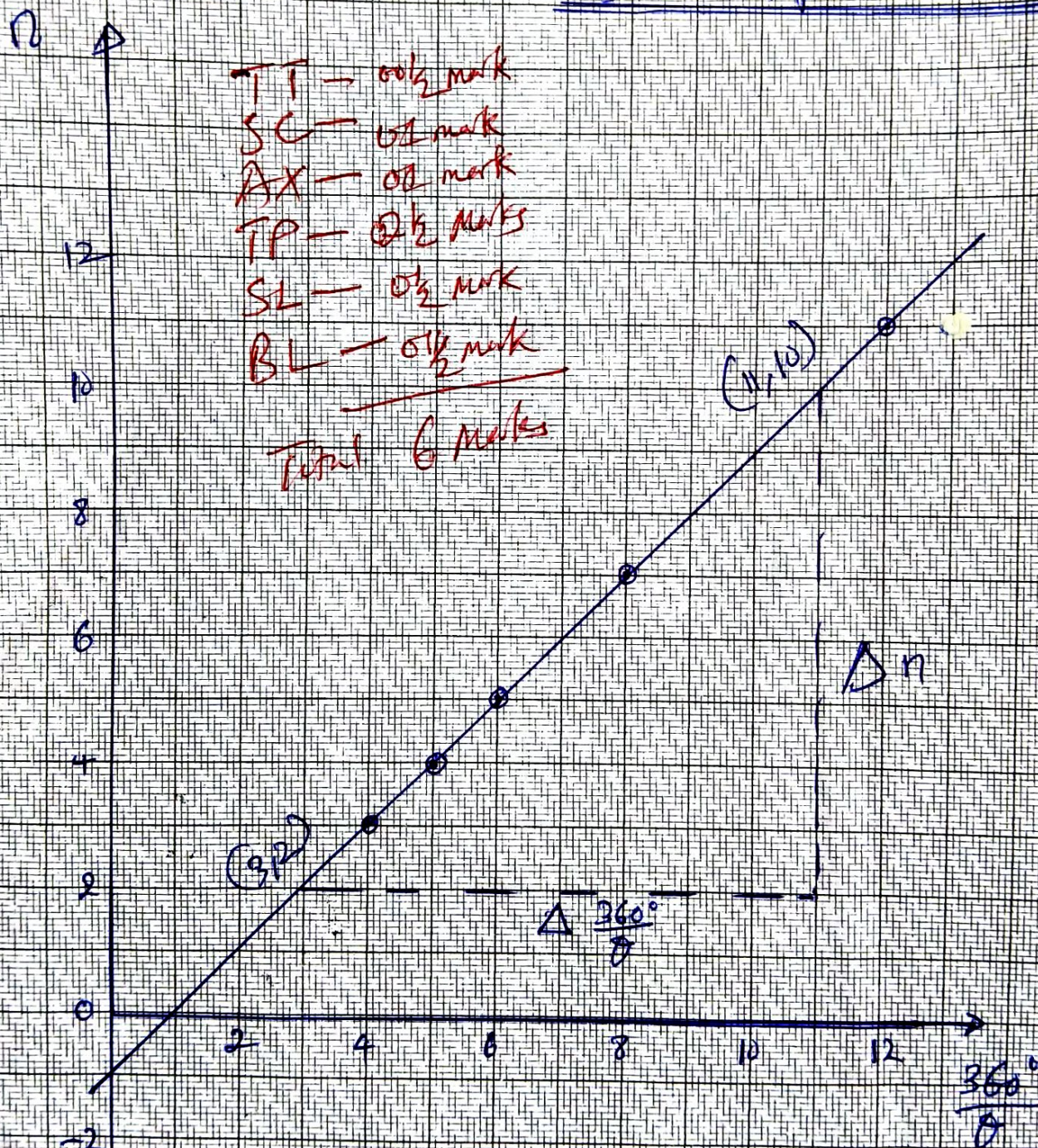
$n = \infty$ (0 mark)

(ii) The aim of the experiment is to determine the number of images in inclined two mirrors. (02 marks)

THE GRAPH OF n AGAINST $\frac{360^\circ}{\theta}$

Scale V.S. 1cm represents 1 unit.

H.S. 1cm represents 1 unit



TT — 0.5 mark
 SC — 0.5 mark
 AX — 0.5 mark
 TP — 2 marks
 SL — 0.5 mark
 BL — 0.5 mark
Total 6 marks