

Kenya Certificate of Secondary Education

PAPER 3

MARKING SCHEME

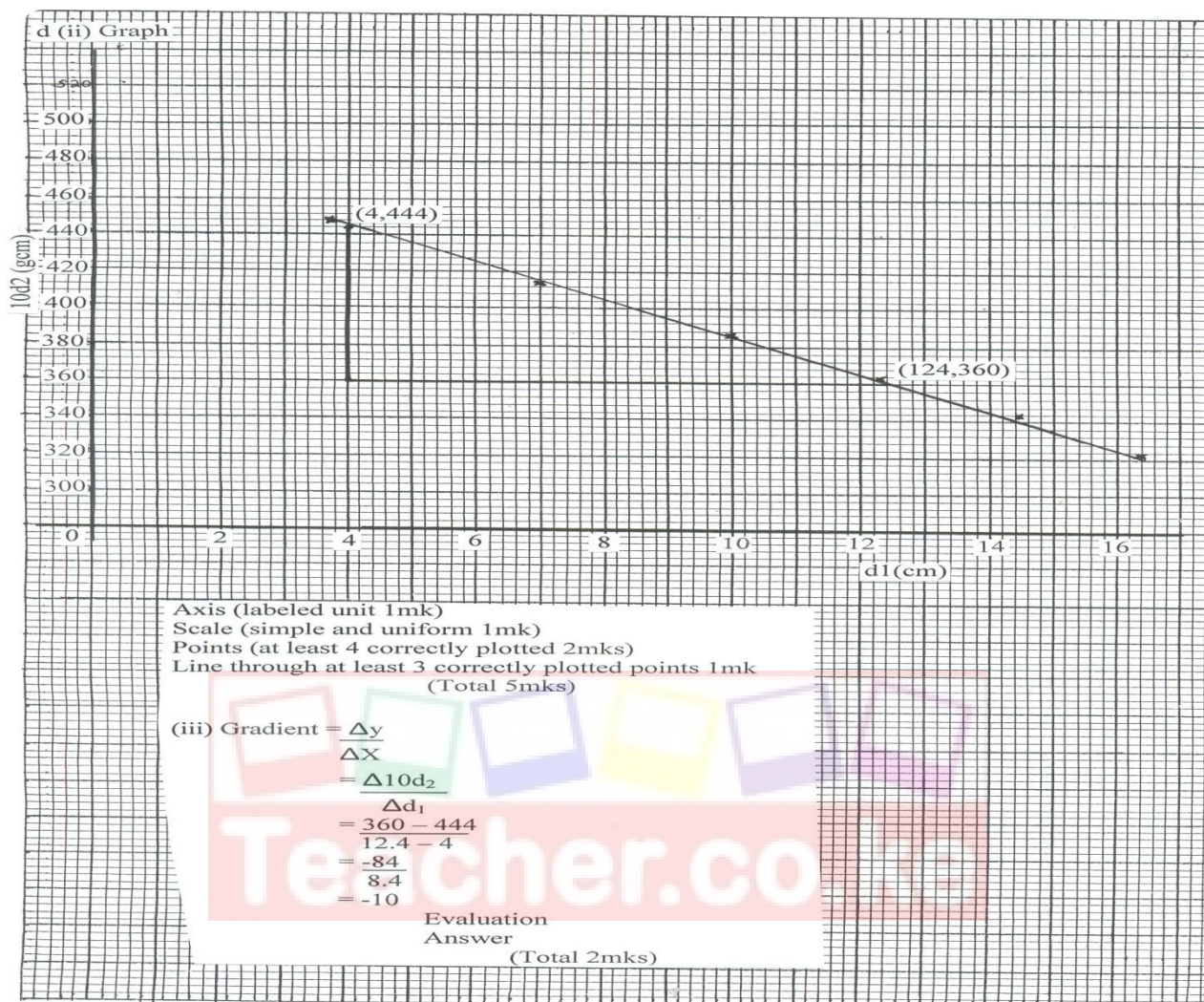
Question 1

PART A

(c) c.o.g = 50.0 + 0.5cm

Mass, m(g)	10	20	30	40	50	60	± 0.01 3 mks ± 0.01 3mks 1mk
Distance d_1 (cm)	3.70	7.00	10.00	12.30	14.40	16.40	
Distance d_2 (cm)	44.80	41.50	38.50	36.20	34.20	32.20	
10g x distance d_2 (gcm)	448	415.0	385.0	362.0	322.0		

Teacher.co.ke



PART B

$$A = 60^\circ \checkmark 1$$

$$D = 37^\circ \checkmark 1 \text{ (evidence required)}$$

$$n = \frac{\cos(90^\circ - A + D)}{2}$$

$$\frac{\sin A}{2}$$

$$= \frac{\cos(90^\circ - 60^\circ + 37^\circ)}{2}$$

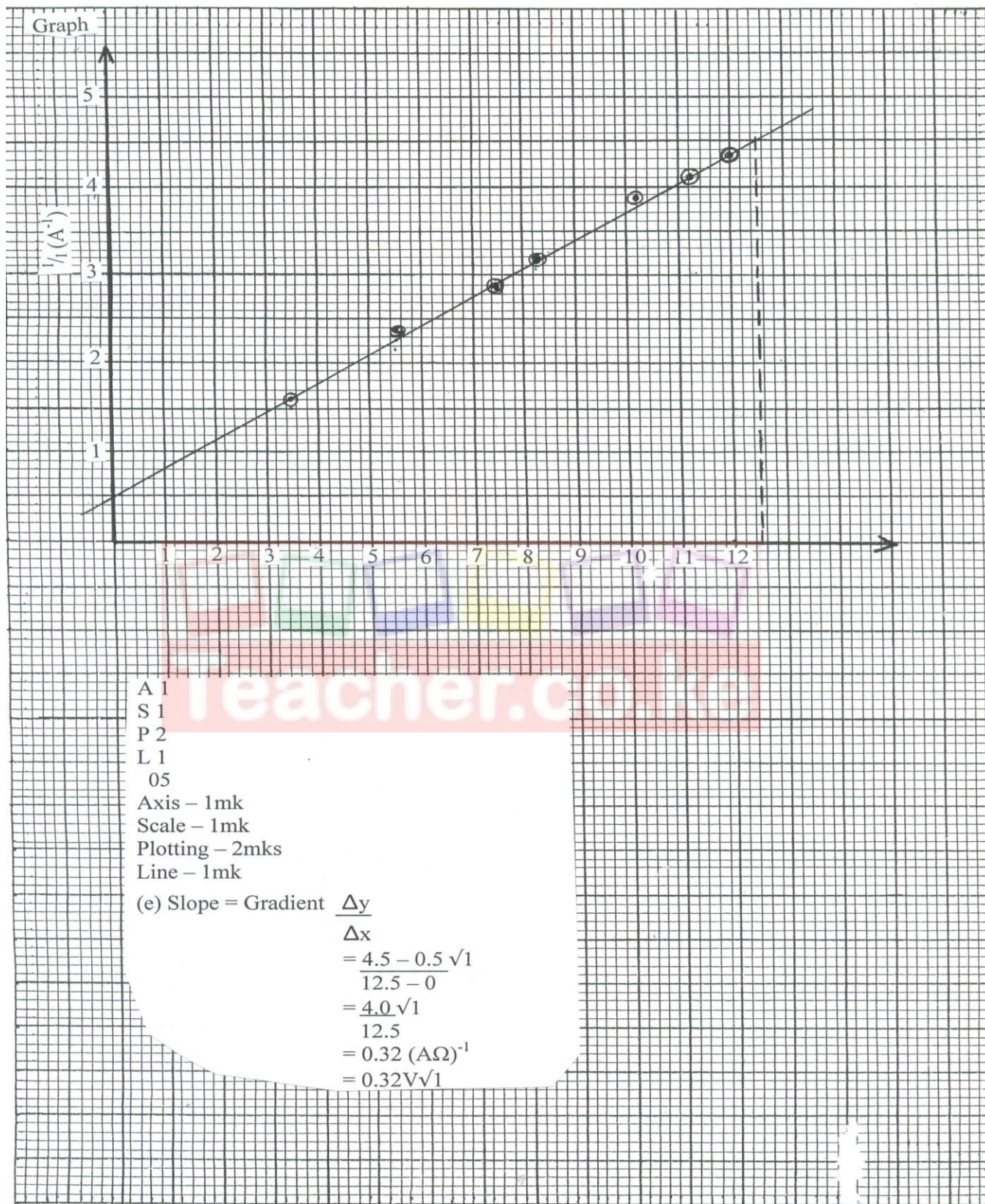
$$2$$

$$\begin{aligned} & \frac{\sin 60^\circ \sqrt{1}}{2} \\ &= \frac{\cos (90^\circ - 48.5^\circ) \sqrt{1}}{2} \\ &= \frac{\sin 30^\circ}{2} \\ &= \frac{\cos 41.5^\circ}{2} \\ &= \frac{\sin 30^\circ}{2} \\ &= \frac{0.7489}{2} \\ &= 0.37445 \\ &= 1.49\sqrt{1} \end{aligned}$$

Question 2

Table 1

L (cm)	0.2	0.4	0.5	0.6	0.7	0.9	1.0	
p.d (V)	2.10	2.40	2.50	2.60	2.65	2.70	2.75	2mks
I (A)	0.62	0.42	0.34	0.32	0.26	0.24	0.23	2mks
R (Ω)	3.39	5.71	7.35	8.12	10.19	11.24	11.96	2mks
$1/I$ (A ⁻¹)	1.61	2.38	2.94	3.13	3.85	4.17	4.35	



$$(f) \underline{I} = \underline{R} + \underline{r}$$

$$\underline{I} \quad \underline{E} \quad \underline{E}$$

From the graph $\underline{I} \propto \underline{R}$

\underline{I}

Therefore using $y = mx + c$

$$\underline{I} = \left(\frac{\underline{I}}{\underline{E}} \right) \underline{R} + \underline{r}$$

\underline{I} is the gradient $\sqrt{1}$

\underline{E}

$$\underline{I} = 0.32$$

\underline{E}

$$\underline{E} = \underline{I}$$

$$0.32$$

\underline{r} is the y-intercept $\sqrt{1}$

\underline{E}

$$\underline{r} = 0.5 \sqrt{1}$$

\underline{E}

$$\text{But } \underline{E} = 3.125$$

$$\therefore \underline{r} = 0.5 \times 3.125$$

$$= 1.5625 \Omega \sqrt{1}$$

