FORM 2 MATHS OPENER TERM 1 2025 MARKING SCHEME
SECTION I:30 MARKS

1. Evaluate without using mathematical tables or calculator (3mks)

$$\frac{3/4 + 2/5 \div 3/5 \text{ of } 1\,2/3}{(1\,3/4 - 5/8) \times 2/9}$$

N→ $\frac{3}{4}+\frac{2}{5} \div \frac{3}{5}$ of $\frac{5}{3}$

$\frac{3}{4}+\frac{2}{5} \div 1$ M1

$= \frac{3}{4}+\frac{2}{5} = \frac{23}{20}$

D→ $\left(\frac{7}{4}-\frac{5}{8}\right)\times\frac{3}{9}$ M1

$= \frac{9}{8}\times\frac{3}{9} = \frac{1}{4}$

$\frac{23}{20} \div \frac{1}{4} = \frac{23}{5} = 4\frac{3}{5}$ A1

2. A tourist arrived in Kenya with US Dollars 3000 which he exchanged into Kenya shillings. He spent Ksh. 75000 on hotel accommodation and Ksh.42500 on travel and other expenses. He changed the remaining money into sterling pounds. Calculate how much money in sterling pounds that he remained with using the following rates. (Leave your answer to the nearest 1£) (3mks)

	Buying (Kshs)	Selling (Kshs)
1 US dollar ($)	78.45	78.95
1 Sterling pound (£)	120.27	121.04

78.45 × 3000 M1

= ksh. 235,350

235350 − (75000 + 42500)

= ksh. 117850 M1

117850 / 121.04

= 973.645 A1

= 974 £

3.Given the ratios A; B is 3;4 and B; C Is 2;3 express the ratio A; B; C in the simplest form. [2mks]

A : B : C

(3 : 4) 1

(2 : 3) 2 M1

A : B : C

3 : 4

4 : 6

A : B : C = 3 : 4 : 6 A1

4. Three cisterns flush after intervals of 24 minutes, 30minutes and 40 minutes respectively. The cisterns flash together at 10. 00pm.what time will they flush together again. (3mks)

$24 = 2^3 \times 3$

$30 = 2 \times 3 \times 5$ M_1

$40 = 2^3 \times 5$

$LCM = 2^3 \times 3 \times 5$

$= 120$ mins / 2h

10.00

2.00 M_1

0000 hrs /

12.00 midnight A_1

5.The sum of interior angles of a regular polygon is a regular polygon is 1260°.find the number of sides of the polygon ang give its name (3mks)

$(n-2)180 = 1260$ M_1

$n-2 = 7$

$n = 9$ A_1

Nonagon A_1

6. Find the length of a square whose area is $0.0081m^2$ (3mks)

$A = \frac{81}{1000}$ M_1

$A = s^2$

$s = \sqrt{A} = \sqrt{\frac{81}{10000}}$ M_1

$= \frac{9}{100} = 0.09m$ A_1

7. Solve the following simultaneous equations. (3mks)

$(3x + y = 10)$ 1

$(x + 6y = 5)$ 3

$3x + y = 10$

$3x + 18y = 15$ M_1

$-17y = -5$

$y = \frac{5}{17}$ A_1

$3x + \frac{5}{17} = 10$

$3x = 10 - \frac{5}{17}$

$x = \frac{55}{17} \mid 3\frac{4}{17}$ A_1

12

8. A right-angled triangular prism has length 3m, breadth 2m and height 2.5m. If the mass of the prism is 3.4kg, find its density. (4mks)

$\rho = \frac{m}{V}$

$V = \frac{1}{2} \times 2 \times 2.5 \times 3$ M_1

$= 7.5\ m^3$ A_1

$\rho = \frac{3.4\ kg}{7.5\ m^3}$ M_1

$= 0.4533\ kg\ m^{-3}$ A_1

9. A watch which loses a half-minute every hour was set to read the correct time at 0545h on Monday. Determine the time, in the 12-hour system, the watch will show on the following Friday at 1945h. (3mks)

Mon → 0545h } 24h
Tue → 0545h } 24h
Wed → 0545h } 24h
Thur → 0545h } 24h
Frid → 0545h

M_1

$(24 \times 4) + 12h = 108\ h$

$1h \Rightarrow 0.5\ min$ M_1

$108h \Rightarrow ?$

$\frac{108 \times 0.5}{1} = 54\ min$

1945h
− 54
1851h A_1
6.51 p.m

10. Ann bought 24 trays of eggs at sh 225 each. Each tray contains 30 eggs. 54 eggs got broken during transportation. At what price must he sell each egg in order to realize a profit of 22%. Answer to the nearest 1 shilling. (3mks)

$24 \times 225 = sh.\ 5400$ M_1

$(24 \times 30) - 54 = 666$ eggs

$\frac{122}{100} \times 5400 = sh.\ 6588$ M_1

$\frac{6588}{666} = 9.89$

$= sh.\ 10$ A_1

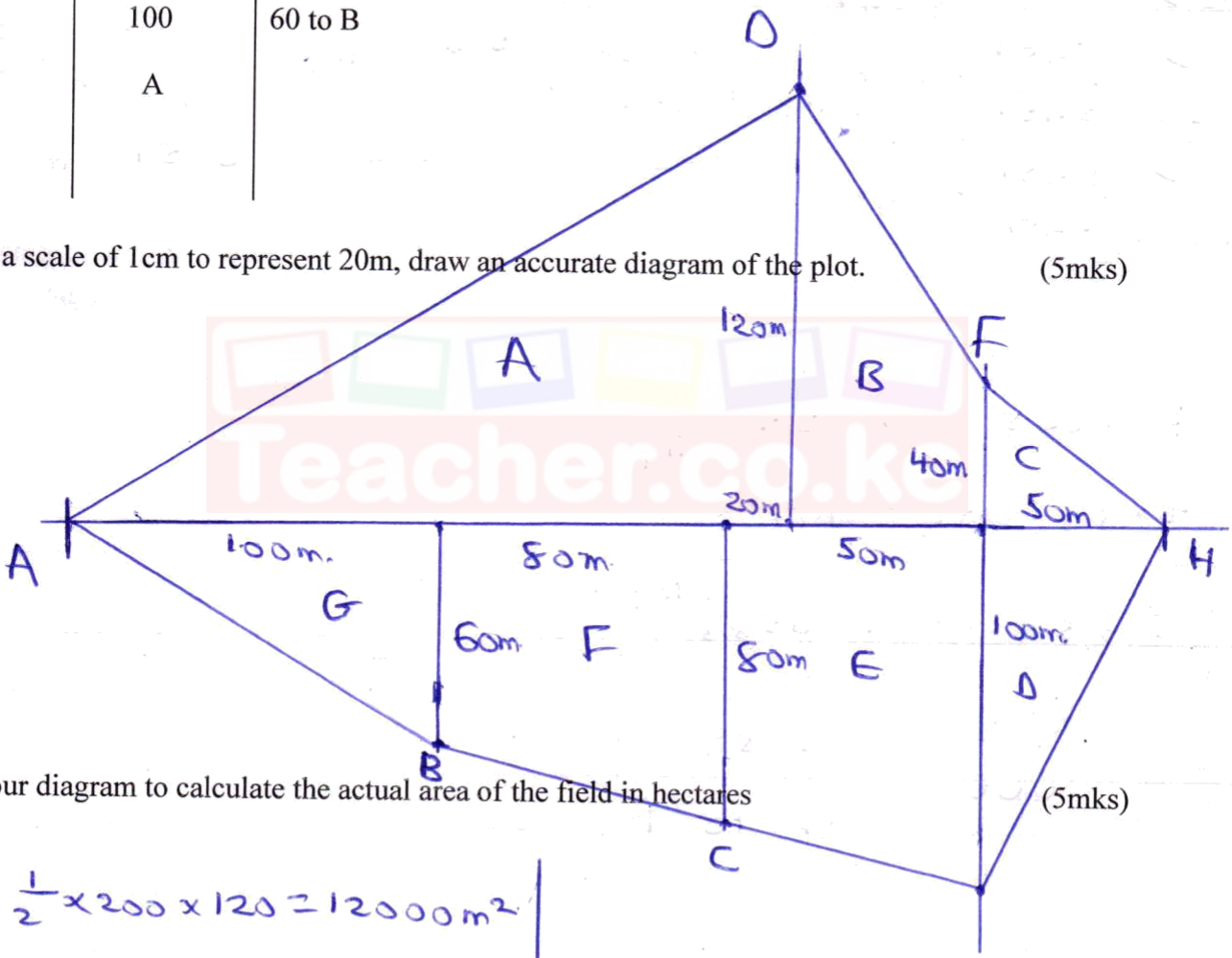
10

SECTION II:20 MARKS

11.A surveyor recorded the following information in his field book after taking measurements in metres of a plot. The baseline is the straight-line AH = 300m.

	H	
40 to F	250	100 to G
120 to D	200	
	180	80 to C
	100	60 to B
	A	

a) Using a scale of 1cm to represent 20m, draw an accurate diagram of the plot. (5mks)



b) Use your diagram to calculate the actual area of the field in hectares (5mks)

$A = \frac{1}{2} \times 200 \times 120 = 12000 m^2$

$B = \frac{1}{2}(120+40)50 = 4000 m^2$

$C = \frac{1}{2} \times 40 \times 50 = 1000 m^2$

$D = \frac{1}{2} \times 100 \times 50 = 2500 m^2$

$E = \frac{1}{2}(80+100)70 = 6300 m^2$

$F = \frac{1}{2}(60+80)80 = 5600 m^2$

$G = \frac{1}{2}(100) \times 60 = 3000 m^2$

$34400 m^2$

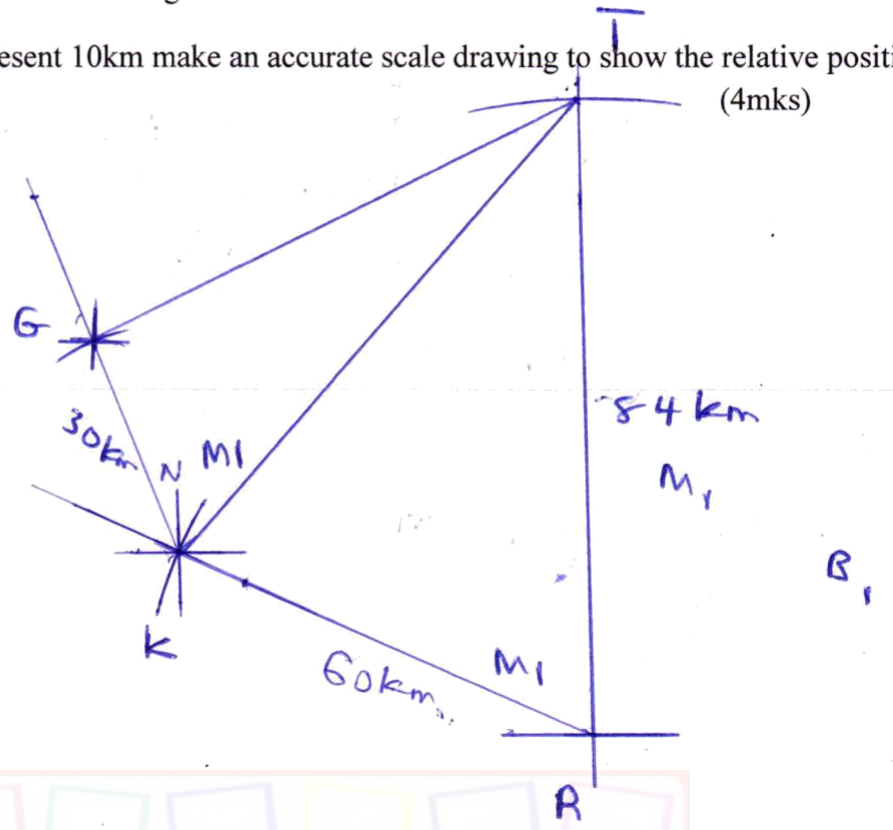
34400

10000

$= 3.44$ Ha.

12.Four towns **R, T, K** and **G** are such that **T** is 84km directly to the north of **R** and **K** is on bearing of 295° from **R** at a distance of 60km. **G** is on a bearing of 340° from **K** and at a distance of 30km.

(a) Using the scale of 1cm to represent 10km make an accurate scale drawing to show the relative positions of the towns. (4mks)



(b)Find: -

(i) The distance and the bearing of **T** from **K** (3mks)

Distance = 8x10 = 80km ±1 A1 1/2

Bearing = 44° ±1 A1 1/2

(ii) The distance and the bearing of **G** from **T.** (3mks)

Distance = 7.1x10 = 71km ±1 A1 1/2

Bearing = 245° ± 1 A1 1/2