



MANGU HIGH SCHOOL

121/1
MATHEMATICS
PAPER 1
MOCK 2022
TIME: 2½ HOURS

NAME: Marking Scheme ADM.NO. _____

INDEX.NO. _____ CLASS: _____

**Kenya Certificate of Secondary Education
MOCK EXAMINATIONS
Mathematics
Paper 1
2½ Hours.**

Instructions to Candidates

- (i) Write your Name, Adm. No., Class and Index No. in the spaces provided above.
- (ii) This paper contains **TWO** sections: section I and section II.
- (iii) Answer **ALL** the questions in section I. In section II choose **FIVE** questions only.
- (iv) Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.
- (v) Marks may be given for correct working even if the answer is wrong.
- (vi) Negligent and slovenly work will be penalized.
- (vii) Non programmable silent electronic calculators and KNEC mathematical tables may be used, except where stated otherwise.

For Examiner's Use only

Section I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total

Section II

17	18	19	20	21	22	23	24	Total

GRAND TOTAL =

This paper consists of **15 printed pages**. Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.

Turn Over

SECTION 1 (50 MARKS)

Answer all the questions in the space provided below each question

1. Without using mathematical tables or calculator evaluate $\frac{3\frac{2}{3} - 2\frac{1}{3} \div 1\frac{1}{5} \times 1\frac{1}{2}}{(\frac{-1}{2})^3 - (\frac{-1}{2})^2}$ (3marks)

<p>Numerator</p> $\frac{11}{3} - \frac{7}{3} \times \frac{5}{6} \times \frac{3}{2}$ $\frac{11}{3} - \frac{35}{12}$ $\frac{44 - 35}{12}$ $\frac{9}{12}$ $\frac{3}{4} \checkmark$	<p>Denominator</p> $\frac{-\frac{1}{8} - \frac{1}{4}}{-1 - 2}$ $\frac{-\frac{3}{8}}{8}$ $\frac{3}{4} \times \frac{-2}{-3}$ $-2 \checkmark$	<p>B1</p> <p>B1</p> <p>B1</p> <p><u>3</u></p>
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2. Find the equation of a straight line that passes through the points A (2,-3) and B (-5, 1). Express your answer in the form $ax + by = c$ where a, b and c are integers. (3marks)

Gradient = $\frac{1 - (-3)}{-5 - 2} = -\frac{4}{7} \checkmark$ B1

$\frac{y+3}{x-2} = -\frac{4}{7} \checkmark$ M1

$-4(x-2) = 7(y+3)$

$-4x + 8 = 7y + 21$

$-4x - 7y = 13$

$4x + 7y = -13 \checkmark$ A1

3

3. Solve for θ if $\frac{\sin(2\theta - 50^\circ)}{\cos(\theta + 10^\circ)} = 1$ (3marks)

$\sin(2\theta - 50^\circ) = \cos(\theta + 10^\circ)$ M1

$\sin(2\theta - 50^\circ) = \sin 90 - (\theta + 10^\circ) \checkmark$ M1

$2\theta - 50 = 90 - \theta - 10 \checkmark$

$3\theta = 130$

$\theta = 43\frac{1}{3}$ or $43.33^\circ \checkmark$ A1

3

4. A Swimming pool can be emptied by 3 pipes P, Q and R working together in $3\frac{3}{4}$ hours. Pipe P and Q working alone takes $7\frac{1}{2}$ hours and $11\frac{1}{4}$ respectively. Determine how long pipe R working alone would take to empty the swimming pool. (3marks)

$$\begin{aligned} Q \& R \& P \rightarrow \frac{4}{15} \\ Q &\rightarrow \frac{7\frac{1}{2}}{45} = \frac{4}{45} \\ P &\rightarrow \frac{2}{15} \\ \frac{2}{15} + \frac{4}{45} + \frac{1}{R} &= \frac{4}{15} \checkmark \\ \frac{1}{R} &= \frac{4}{15} - \left(\frac{2}{15} + \frac{4}{45}\right) \\ \frac{1}{R} &= \frac{2}{45} \checkmark \end{aligned}$$

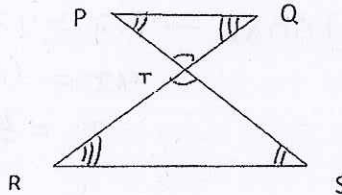
$$\begin{aligned} 1 \text{ hr} &\rightarrow \frac{2}{45} \\ ? &\in \frac{45}{45} \\ \frac{45 \times 1}{45} \times \frac{45}{2} \\ &= 22\frac{1}{2} \text{ hrs} \checkmark \end{aligned}$$

M1
M1

A1
(3)

5. In the figure below $PQ \parallel RS$. PS and RQ intersect at T. If $PT:PS = 2:5$ and $QT = 3.5$ cm, calculate correct to 2 decimal place RQ. (3 marks)

$$\begin{aligned} \frac{RT}{3.5} &= \frac{3}{2} \checkmark \\ RT &= \frac{3}{2} \times 3.5 \\ &= 5.25 \checkmark \\ RQ &= 5.25 + 3.5 \\ &= 8.75 \checkmark \end{aligned}$$



M1
M1

A1
(3)

6. A is the point (2, 3, 4) and B is the point (X, 6, 8). Determine the possible values of X if $|AB| = 13$ (4 marks)

$$\begin{aligned} (X-2)^2 + (6-3)^2 + (8-4)^2 &= 169 \checkmark \\ X^2 - 4X + 4 + 9 + 16 &= 169 \\ X^2 - 4X - 140 &= 0 \\ X &= \frac{4 \pm \sqrt{16 + 560}}{2} \checkmark \\ X &= \frac{4 \pm \sqrt{576}}{2} \\ X &= \frac{4 \pm 24}{2} \checkmark \\ X &= \frac{28}{2} \text{ or } \frac{-20}{2} \\ X &= 14 \text{ or } -10 \checkmark \end{aligned}$$

M1
M1
M1

A1
(4)

7. A metal hemisphere of radius 16 cm is melted down and cast into a cone of radius 8cm. Calculate the volume of the cone. (3marks)

$$\frac{1}{2} \times \frac{4}{3} \times \frac{22}{7} \times 16^3 = \frac{1}{3} \times \frac{22}{7} \times 64 \times h \checkmark$$

M1

$$h = \frac{1}{2} \times \frac{4}{3} \times \frac{3 \times 7}{64 \times 22} \times \frac{22}{7} \times 16^3$$

M1

$$h = 128 \checkmark$$

$$\text{Volume of cone} = \frac{1}{3} \times \frac{22}{7} \times 64 \times 128$$

A1

$$= 8,582 \checkmark$$

(3)

8. Five of the interior angles in a nonagon are 160° and the remaining are each x° . Find the possible values of x . (3marks)

$$\text{Sum of interior angles of nonagon} = 180(9-2) = 1260 \checkmark$$

B1

$$160 \times 5 + 4x = 1260 \checkmark$$

M1

$$4x = 1260 - 800$$

$$x = \frac{460}{4}$$

$$x = 115 \checkmark$$

A1

(3)

9. Calculate the quartile deviation of the following set of data (4marks)

(4marks)

Marks	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
No. of students	3	5	8	12	15	11	9	4

cf 3 8 16 28 43 54 63 67

$$Q_1 \rightarrow \frac{1}{4} \times 67 = 16.75^{\text{th}} \text{ position}$$

$$50.5 + \frac{(16.75 - 16) \times 10}{12}$$

B1

$$50.5 + 0.625$$

$$51.125 \checkmark$$

B1

$$Q_3 \rightarrow \frac{3}{4} \times 67 = 50.25^{\text{th}} \text{ position}$$

M1

$$70.5 + \frac{(50.25 - 43) \times 10}{12}$$

$$70.5 + 6.591 \checkmark$$

$$77.09 \checkmark$$

A1

$$\text{Quartile deviation} = \frac{77.09 - 51.125}{2} = \frac{25.965}{2}$$

(4)

$$= 12.98 \checkmark$$

10. A metallic pipe which is 21 meters long has an internal radius of 13 cm and an external radius of 15 cm. if the density of the metal is 8000 kg/m³, find its mass. (Take $\pi = \frac{22}{7}$). (4 marks)

$$\begin{aligned} \text{External volume} &= \frac{22}{7} \times 15^2 \times 2100 = 371,250 \checkmark & M1 \\ \text{Internal volume} &= \frac{22}{7} \times 13^2 \times 2100 = 278,850 \checkmark & M1 \\ \text{Volume of Material} &= 371,250 - 278,850 = 92,400 \text{ cm}^3 & A1 \\ &= 0.924 \text{ m}^3 \checkmark \\ 8000 &= \frac{\text{Mass}}{0.924} \\ \text{Mass} &= 7,392 \text{ kg} \checkmark & B1 \\ & & (4) \end{aligned}$$

11. Muthoni, Chebet and Amina contributed ksh 50,000, ksh 40,000 and ksh 25,000 respectively to start a business. After some time they realized a profit which was shared in the ratio of their contribution. If Amina's share was ksh 10,000, by how much was Muthoni's share more than that of Chebet's. (3marks)

$$\begin{aligned} M : C : A &= 50,000 : 40,000 : 25,000 \\ &= 10 : 8 : 5 \\ \frac{5}{23} x &= 10,000 \checkmark \\ x &= \frac{10,000 \times 23}{5} \\ &= 46,000 \checkmark \\ \text{Muthoni} &= \frac{10}{23} \times 46,000 = 20,000 \\ \text{Chebet} &= \frac{8}{23} \times 46,000 = 8,000 \\ 20,000 - 8,000 &= 12,000 \checkmark & M1 \\ & & M1 \\ & & A1 \\ & & (3) \end{aligned}$$

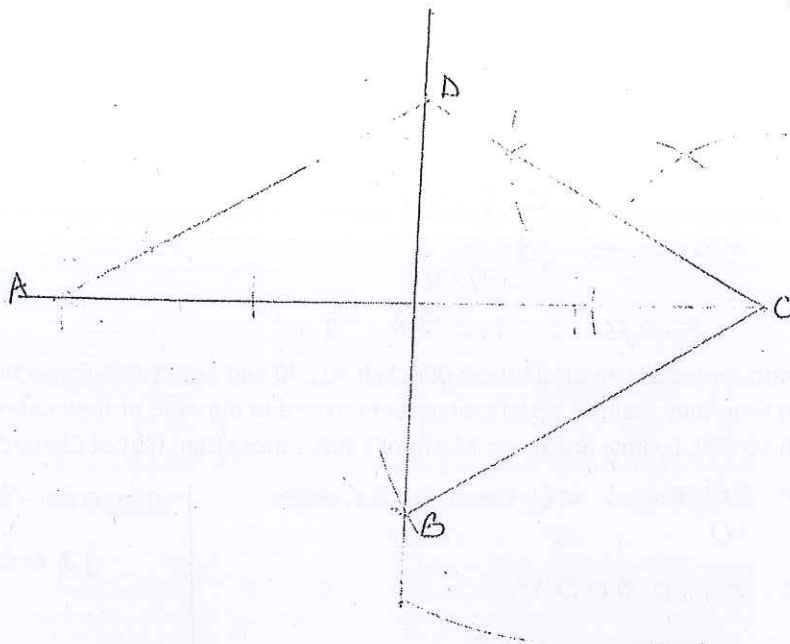
12. The cost of two jackets and 3 shirts was 1800. After the cost of a jacket and that of a shirt were increased by 20%, the cost of 6 jackets and 2 shirts was ksh 4,800. Calculate new total cost of 5 jackets and 4 shirts. (3 marks)

$$\begin{aligned} (2J + 3S = 1800) \times 8 & \checkmark \\ (7.2J + 2.4S = 4800) \times 10 & \checkmark \\ \hline 16J + 24S &= 14,400 \\ 72J + 24S &= 48,000 \checkmark \\ \hline 56J &= 33,600 \\ J &= 600 \\ \text{Shirt} &= \frac{1800 - 1200}{3} = 200 \\ 1.2 \times 600 &= 720 \\ 1.2 \times 200 &= 240 \\ 5 \times 720 + 4 \times 240 &= 3600 + 960 \\ &= 4,560 \checkmark & M1 \\ & & M1 \\ & & A1 \\ & & (3) \end{aligned}$$

13. Without using mathematical tables evaluate $\frac{\sqrt{0.108 \times 14.7}}{0.21 \times 0.048}$ (3marks)

$$\begin{aligned} \sqrt{\frac{54 \times 27}{1000 \times 5} \times 14.7} &= \sqrt{\frac{27 \times 3 \times 7^2}{2500}} = \sqrt{\frac{3^3 \times 3 \times 7^2}{2500}} = \frac{3^2 \times 7}{50} \checkmark & M1 \\ \frac{21 \times \frac{24 \times 7^3}{100}}{25 \times \frac{250}{125}} &= \frac{21 \times 3}{25 \times 12.5 \times 2} \checkmark & M1 \\ \frac{3 \times 3 \times 7}{50} \times \frac{25 \times 12.5 \times 2}{21 \times 3} &= 12.5 \checkmark & A1 \\ & & (3) \end{aligned}$$

14. Using a ruler and a pair of compass only, construct a rhombus ABCD such that AC = 10 cm and $\angle BAD = 60^\circ$ (3marks)



Construction of the bisector BD ✓
 Construction of 60° at B
 30° to locate D ✓
 Completed rhombus ✓
 B1

3

15. Without using a calculator or mathematical tables, evaluate $\frac{4^x \times (\sqrt{32})^x}{(256)^{\frac{1}{x}}} = 1$ (3marks)

$$\frac{4^x \times 2^{5 \cdot \frac{x}{2}}}{(2^8)^{\frac{1}{x}}} = 1$$

$$2^{2x} \times 2^{2.5x} = 2^{\frac{8}{x}} \checkmark$$

$$4.5x = \frac{8}{x} \checkmark$$

$$4.5x^2 = 8$$

$$x^2 = \frac{16}{9}$$

$$x = \frac{4}{3} = 1\frac{1}{3} \checkmark$$

M1

M1

A1

3

16. A point P divides a line AB externally in the ratio 4:3. Given that A is (-2, 4) and point B (2, -3). Find the coordinates of T. (3marks)

$$\begin{aligned} AP &: PB \\ 4 &: -3 \end{aligned}$$

$$\frac{-3}{1} \begin{pmatrix} 2 \\ -3 \end{pmatrix} +$$

$$OT = \frac{-3}{1} \begin{pmatrix} -2 \\ 4 \end{pmatrix} + \frac{4}{1} \begin{pmatrix} 2 \\ -3 \end{pmatrix} \checkmark$$

$$OT = \begin{pmatrix} 6 \\ -12 \end{pmatrix} + \begin{pmatrix} 8 \\ -12 \end{pmatrix}$$

$$OT = \begin{pmatrix} 14 \\ -24 \end{pmatrix} \checkmark$$

$$T(14, -24) \checkmark$$

M1

M1

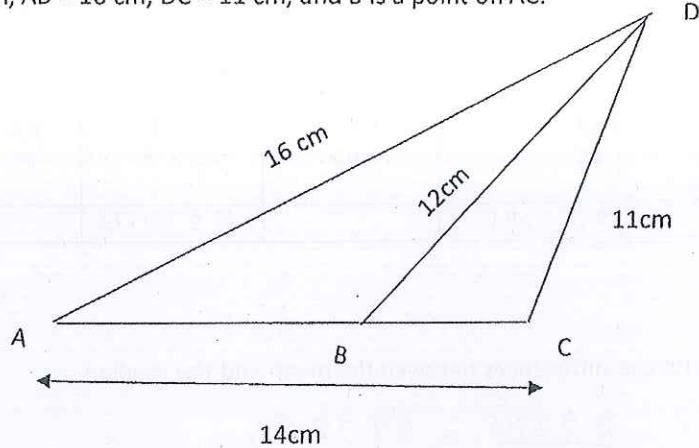
A1

3

SECTION 11(50MARKS)

Answer only five questions from this section.

17. In the figure below, AC = 14 cm, AD = 16 cm, DC = 11 cm, and B is a point on AC.



a) Calculate, correct to 2d.p

(i) $\angle BAD$

(3marks)

$$11^2 = 14^2 + 16^2 - 2 \times 14 \times 16 \times \cos A \checkmark$$

M1

$$121 = 196 + 256 - 448 \cos A$$

M1

$$448 \cos A = 331$$

$$\cos A = 0.7388 \checkmark$$

A1

$$\angle A = 42.37 \checkmark$$

(ii) The size of obtuse $\angle ABD$

(3marks)

$$\frac{16}{\sin B} = \frac{12}{\sin 42.37} \checkmark$$

M1

$$\sin B = 0.8986$$

M1

$$\angle B = 63.97 \checkmark$$

A1

$$\text{obtuse angle } B = 116.03 \checkmark$$

b) Calculate correct to 1 decimal place:-

(i) The length of AB

(2marks)

$$\angle ADB = 180 - (42.37 + 116.03) = 21.6^\circ$$

M1

$$\frac{AB}{\sin 21.6} = \frac{16}{\sin 116.03} \checkmark$$

A1

$$AB = 6.555$$

$$AB = 6.6 \checkmark$$

(ii) The area of triangle BCD

(2marks)

$$\angle BCD = 180 - 116.03 = 63.97, BC = 14 - 6.555 = 7.445$$

$$\frac{1}{2} \times 7.445 \times 12 \times \sin 63.97 \checkmark$$

M1

$$40.14$$

7

$$40.1 \checkmark$$

A1

(10)

18. The following table shows heights of 100 seedlings each measured to the nearest cm.

Height(cm)	frequency	\bar{x}	$f\bar{x}$ ✓	C-f	frequency density ✓
70-79	14	74.5	1043	14	1.4
80-84	16	82	1312	30	3.2
85-89	18	87	1566	48	3.6
90-94	20	92	1840	68	4.0
95-99	17	97	1649	85	3.4
100-109	15	104.5	1567.5	100	1.5
110-119					
	$\Sigma f = 100$		$\Sigma f\bar{x} = 8977.5$		

a) Calculate the differences between the mean and the median.

(6marks)

$$\bar{x} = \frac{8977.5}{100} = 89.775 \checkmark$$

$$\text{Median} = 89.5 + \frac{(50 - 48) \times 5}{20} \checkmark$$

$$89.5 + 0.5$$

$$90 \checkmark$$

$$\text{difference} = 90 - 89.775$$

$$= 0.225 \checkmark$$

B1 fx

M1

A1

M1

A1

B1

b) Draw a frequency polygon to illustrate the above information

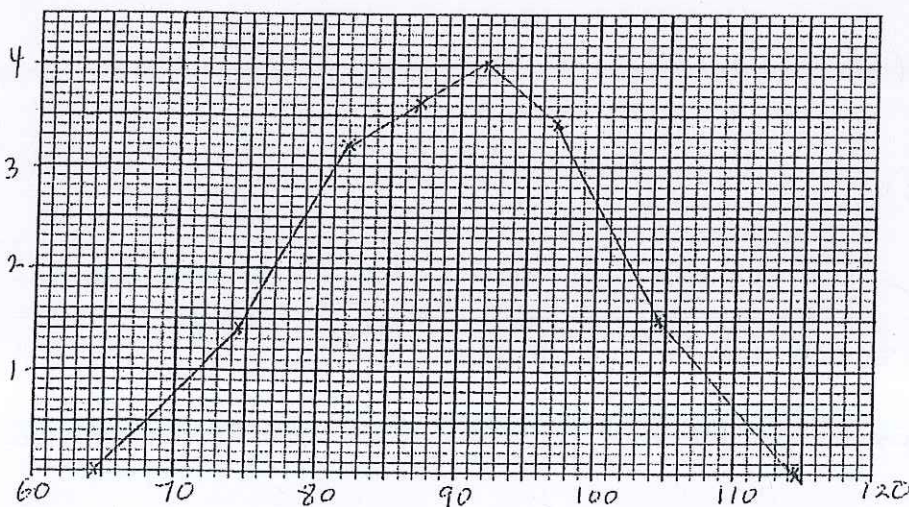
(4marks)

B1 frequency density

S1

P1

B1 correct polygon



19. Two towns P and Q are 280 km apart. A bus left town P at 9.30 am and travelled to Q at an average speed of 80 km/h. After 30 minutes, a car left town P for Q and travelled at an average speed of 100 km/h.

a). Determine:-

(i) The time when the car caught up with the bus. (3marks)

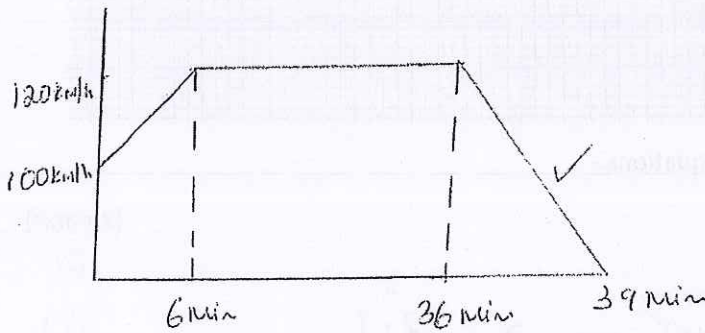
Distance moved by bus
 $\frac{30 \times 80}{60} = 40 \text{ km} \checkmark$
 R.S = $100 - 80 = 20 \text{ km/h}$
 Time = $\frac{40}{20} = 2 \text{ hrs} \checkmark$
 $\begin{array}{r} 9.30 \\ + 2.00 \\ \hline 11.30 \text{ am} \end{array}$

Time car caught up
 $\begin{array}{r} 11.30 \\ .30 \\ \hline 12.00 \text{ noon} \checkmark \end{array}$ M1
 M1
 A1

(ii) The distance of the car from town Q when it overtook the bus. (3marks)

Distance = $2 \times 100 = 200 \text{ km} \checkmark$ M1
 Distance from Q = $280 - 200 \checkmark$ M1
 $= 80 \text{ km} \checkmark$ A1

b) After the car overtook the bus, it accelerated for 6 minutes to a speed of 120 km/h. It moved with that speed for 30 minutes after which breaks are applied and came to rest at town T after 3 minutes. Determine the distance travelled by the car in 39 minutes. (4marks)



$\frac{1}{2} \times \frac{6}{60} (100 + 120) + \frac{30}{60} \times 120 + \frac{1}{2} \times \frac{3}{60} \times 120 \checkmark$
 $11 \text{ km} + 60 \text{ km} + 3 \text{ km}$
 $74 \text{ km} \checkmark$ 9

B1
 M1 M1
 A1
 10

20. a) Complete the table of values for the equation $y = -2x^2 + 3x + 6$.

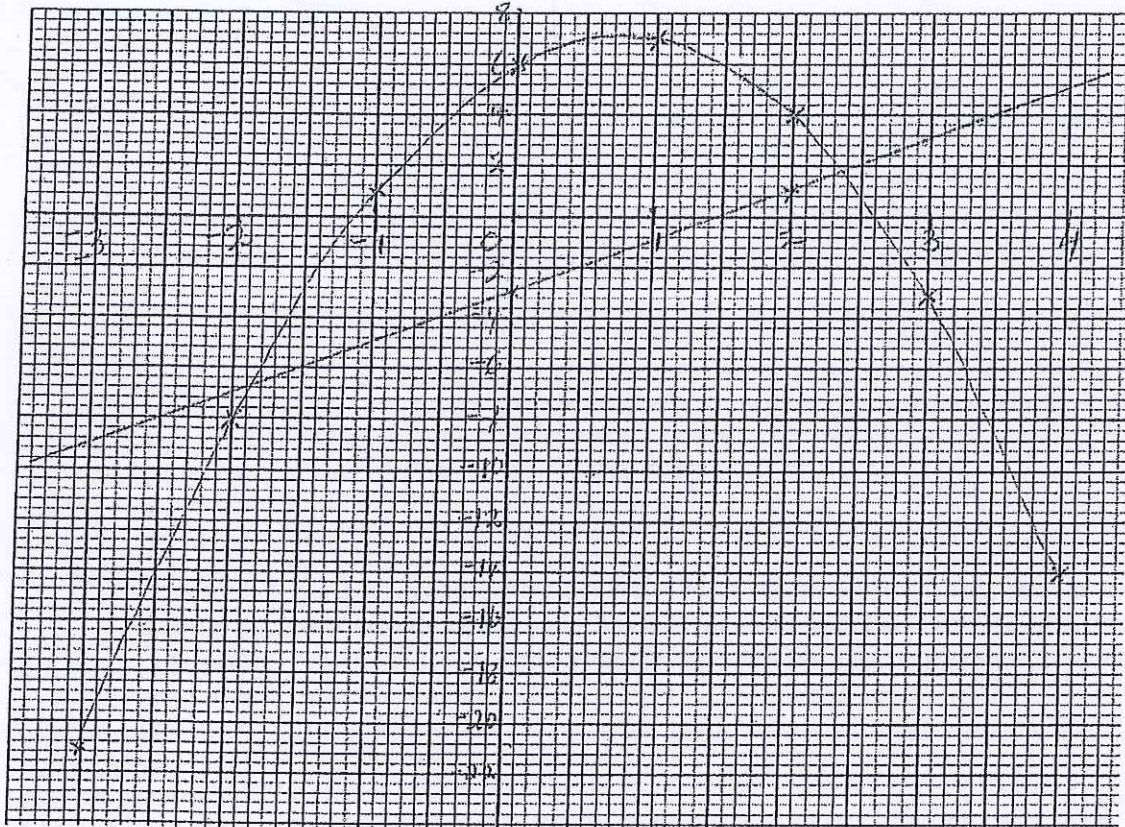
(2marks)

x	-3	-2	-1	0	1	2	3	4
y	-21	-8	1	6	7	4	-3	-14

B2

b) Use the values above to draw the graph of $y = -2x^2 + 3x + 6$.

(3marks)



S1
P1
C1
L1

c) Using the graph drawn above Solve the equations:-

(i) $2x^2 = 3x + 6$

(2marks)

$-2x^2 + 3x + 6 = 0$

B1

at point of intersection of curve with x-axis $x = -1.15$ or $x = 2.1$

B1

(ii) $-2x^2 + x + 9 = 0$

(3marks)

$-2x^2 + 3x + 6 = y$

$2x + 3 = y$

B1

$2x - 3 = y$

B1

at point of intersection

10

$x = -1.85$ or 2.35

10

21. A trader deals with two types of Millet, type A and type B. type A costs ksh 400 per bag and type B costs ksh 350 per bag.

a) The trader mixes 30 bags of type A and 50 bags of type B. If she sells the mixture at a profit of 20%, calculate the selling price of one bag of the mixture. (4 marks)

$$\frac{30 \times 400 + 50 \times 350}{80} = 368.75 \quad M1$$

$$\frac{29500}{80} = 368.75 \quad A1$$

$$100\% \rightarrow 368.75 \quad M1$$

$$120\% \rightarrow \frac{120 \times 368.75}{100} = 442.50 \quad A1$$

b) The trader now mixes type A and type B in the ratio x: y respectively. If the cost of the mixture is ksh 383.50 per bag, find the ratio x:y. (4marks)

$$\frac{400x + 350y}{x+y} = 383.50 \quad M1$$

$$400x + 350y = 383.50x + 383.50y \quad M1$$

$$16.5x = 33.5y \quad M1$$

$$\frac{x}{y} = \frac{33.5}{16.5} \quad A1$$

$$\frac{x}{y} = 2\frac{1}{33}$$

$$x:y = 67:33 \quad \checkmark$$

c) The trader mixes one bag of the mixture in part (a) with one bag of the mixture in part (b) above. Calculate the ratio of type A millet to type B millet in this mixture. (2marks)

A: B = 3:5	A: B = 67:33	
A $\frac{3}{8}$	A $\frac{67}{100}$	
B $\frac{5}{8}$	B $\frac{33}{100}$	M1

$$\frac{3}{8} + \frac{67}{100} : \frac{5}{8} + \frac{33}{100} \quad \checkmark$$

$$\frac{19}{200} : \frac{191}{200} \quad 11$$

$$\frac{209}{200} : \frac{191}{200} \quad A1$$

$$209 : 191 \quad \checkmark$$

22. The equation of a line L_1 is $3y + 2x = 10$

a) Find in form of $y = mx + c$, where m and c are constants:-

i. The equation of line L_2 passing through $N(-5, 2)$ and parallel to L_1 (2mks)

$$\begin{array}{l|l}
 3y = -2x + 10 & y = -\frac{2}{3}x - \frac{4}{3} \checkmark \\
 y = -\frac{2}{3}x + \frac{10}{3} & \\
 \hline
 c_1 = -\frac{2}{3} = c_2 & \\
 \frac{y-2}{x+5} = -\frac{2}{3} \checkmark & \\
 -2x - 10 = 3y - 6 & \\
 -2x - 4 = 3y &
 \end{array}$$

M1
A1

ii. The equation of line L_3 perpendicular to L_2 at $M(1, -8)$ (3mks)

$$\begin{array}{l}
 c_1 = -\frac{2}{3} \\
 c_2 = \frac{3}{2} \checkmark \\
 \frac{y+8}{x-1} = \frac{3}{2} \checkmark \\
 2(y+8) = 3(x-1) \\
 2y + 16 = 3x - 3 \\
 2y = 3x - 19 \\
 y = \frac{3}{2}x - \frac{19}{2} \checkmark
 \end{array}$$

B1
M1
A1

b) Find the angle of inclination of the line L_2 with the horizontal. (2mks)

$$\begin{array}{l}
 \tan \theta = -\frac{2}{3} \checkmark \\
 \theta = 33.69 \\
 \text{but } \tan \text{ is } -ve \\
 \therefore \theta = 146.3 \checkmark
 \end{array}$$

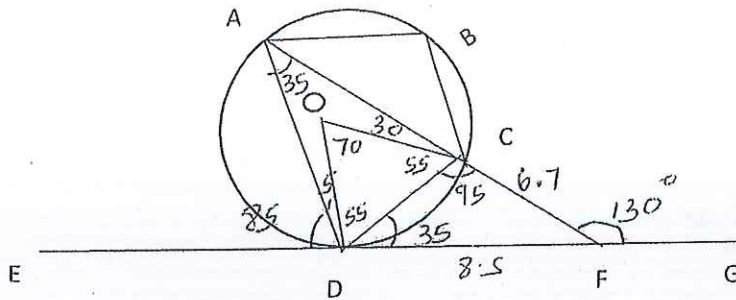
M1
A1

c) Find the magnitude of MN . (3mks)

$$\begin{array}{l}
 |MN| = \sqrt{(-5-1)^2 + (2-8)^2} \checkmark \\
 = \sqrt{36 + 100} \checkmark \\
 = \sqrt{136} \\
 = 11.66 \checkmark
 \end{array}$$

M1
M1
A1

23. In the figure below A, B, C and D are points on the circle Centre O. ACF and EDGF are straight lines. Line EG is a tangent to the circle at D. $\angle CDF = 35^\circ$ and $\angle CFG = 130^\circ$



a) Calculate the size of:-

i) $\angle OCD$

$$\frac{1}{2}(180 - 70) = 55^\circ \checkmark$$

(2marks)

M1

A1

ii) $\angle EDA$

$$\angle ACD = \angle EDA = 30 + 55 = 85^\circ \checkmark$$

(1mark)

E1

iii) $\angle ABC$

$$\angle ADC = 55 + 5 = 60^\circ \checkmark$$

$$\angle ABC = 180 - 60 = 120^\circ \checkmark$$

(2marks)

B1

B1

b) Given that $CF = 6.7$ cm and $DF = 8.5$ cm, Calculate to 3 significant figures:

i) The length of DC.

$$DC^2 = 8.5^2 + 6.7^2 - 2 \times 6.7 \times 8.5 \times \cos 50^\circ \checkmark$$

$$= \sqrt{43.93} \checkmark$$

$$= 6.628$$

$$= 6.63 \checkmark$$

(3marks)

M1

M1

A1

ii) The radius of the circle.

$$\frac{6.628}{\sin 35} = 2R \checkmark$$

$$\frac{6.628}{2 \sin 35} = R \checkmark$$

$$5.778 = R$$

$$5.78 = R \checkmark$$

(3marks)

M1

M1

A1

T0

24. The product of the first three terms of a geometric progression is 64. If the first term is a and the common ratio is r ,

a) Express r in terms of a .

(3marks)

$$a, ar, ar^2$$

$$a^3 r^3 = 64 \checkmark$$

M1

$$r^3 = \frac{64}{a^3} \checkmark$$

M1

$$r = \frac{4}{a} \checkmark$$

A1

b) Given that the sum of the three terms is 14

i) Find the value of a and r and hence write down two possible sequence up to the 4th term. (5 marks)

$$a + ar + ar^2 = 14 \checkmark$$

$$a + a \times \frac{4}{a} + a \times \frac{16}{a^2} = 14$$

$$a + 4 + \frac{16}{a} = 14$$

$$a + \frac{16}{a} = 10$$

$$a^2 + 16 = 10a$$

$$a^2 - 10a + 16 = 0 \checkmark$$

$$a = \frac{10 \pm \sqrt{100 - 64}}{2} \checkmark$$

$$a = \frac{10 \pm 6}{2}$$

$$a = 8, \text{ or } 2$$

$$\text{When } a = 8$$

$$r = \frac{1}{2}$$

M1

$$\text{When } a = 2$$

$$r = 2$$

M1

M1

possible sequence

B1

$$8, 4, 2, 1$$

$$2, 4, 8, 16$$

B1

ii) Find the product of the 50th terms of the two sequence.

(2marks)

$$ar^{n-1} \quad 8 \left(\frac{1}{2}\right)^{49} \times 2 (2)^{49} \checkmark$$

M1

$$8 \cdot 2^{-49} \times 2 \times 2^{49}$$

$$8 \times 2 \times 2^0$$

$$16 \checkmark$$

A1