MATHEMATICS PAPER 1
KISUMU EAST AND NORTH DISTRICT
MARKING SCHEME

1.	$\frac{(y-2x)(2y+x)}{(2y-x)(2y+x)}$ $\frac{y-2x}{2y-x}$	M1 M1 A1	For den For num
		3	
2.	90%=300,000 $115\% = \frac{115 x 300000}{90}$ $=390,000$	M1 M1 A1	
		3	
3.	$\frac{2}{\sqrt{5}}+2$ $\frac{2\sqrt{5}+10}{5}$ $=2+\frac{2}{5}\sqrt{5}$	B1 M1 A1	For 2
		3	
4.	$Food = \frac{1}{2}$ $Tran = \frac{1}{20}$ $\text{Re}m = \frac{1}{5}$ $\frac{1}{5} = 3400$ $\frac{5}{5} = \frac{5}{5} x \frac{5}{1} x 3400$ $=17,000$	M1 M1 A1	
		3	
5.a) b)	$M\left(-\frac{2+4}{2}, \frac{6+2}{2}\right)$ $=(1,4)$ $g_1 = -\frac{2}{3}$ $g_2 = \frac{3}{2}$ $\frac{y-4}{x-1} = \frac{3}{2}$ $2y = 3x+5$ $y = \frac{3}{2}x + \frac{5}{2}$	B1 M1 A1	
		3	

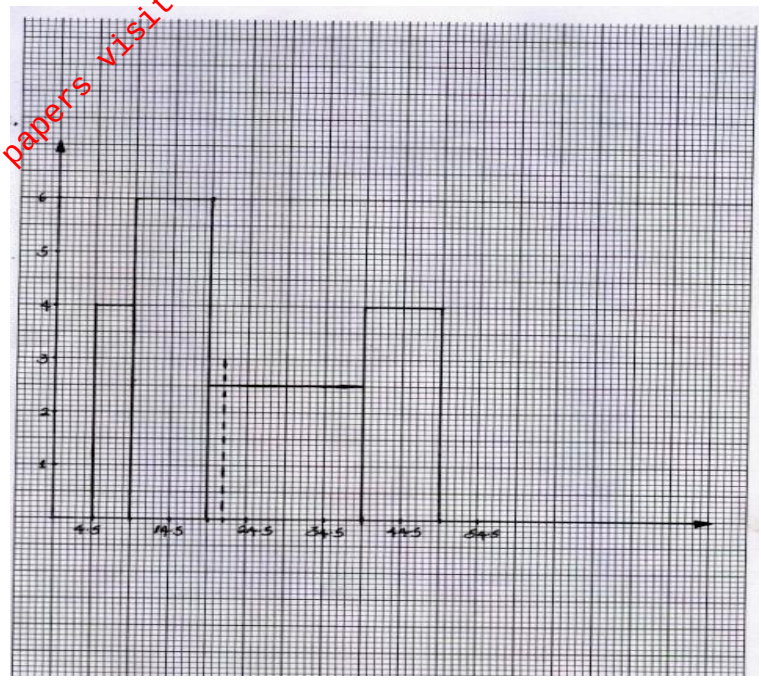
6.	$Log_2(x^2-9)=4$ $x^2-9=16$ $x^2=25$ $x=+5 \ \ or \ \ -5$	M1 M1 A1	
		3	
7.	$50,48,46.....$ $T_8=50+7x-2$ $=36$ $S_2=\frac{20}{2}(2x50+(20-1)x-2)$ $=620$	M1 A1 M1 A1	
		4	
8.	$x(x+4)=96$ $x^2+4x-96=0$ $(x-8)(x+12)=0$ $x=8$ $Length=12$ $Width=8$	M1 M1 A1	
		3	
9.	$\frac{16+20}{-12-6}$ $\frac{36}{-18}$ $=-2$	M1 A1	√ min& deno
		2	
10.a) b)	$\frac{CE}{BC}=\frac{DE}{AB}$ $\frac{x}{x+6}=\frac{7.5}{15}$ $x=6$ $\sqrt{6^2-3.75^2}=4.684$ $A=\frac{1}{2}x15x9.368-\frac{1}{2}x7.5x4.684$ $=52.698$	 B1 M1 M1 A1	
		4	
11.	$\frac{2.4}{100}x100,000=2400$ $\frac{3.9}{100}x180,000=7020 \ \ +$ $=9420$	M1 M1 A1	
		3	

12.	$\frac{120}{160} = 45 Min$ $= 9.30 + 45$ $= 10.15\ am$	M1 M1 A1	
		3	
13.	x fx 2 4 4 18 16 15 24 21 16 9 cf 2 5 7 13 17 20 24 27 29 30 $Mean = \frac{129}{30}$ $= 5$ Median = 4	B1 M1 A1 B1	
		4	
14.	$6x - 8 < x + 4$ $x < 2.4$ $x + 4 \le 15 + 6x$ $x \ge -2.2$ int *egral values* : $-2, -1, 0, 2$	B1 B1 B1	
		3	
15.	$\frac{22}{7} x 5^2 (10 - 6) = 314.29$ $\frac{4}{3} x \frac{22}{7} r^3 = 314.29$ $r = 4.217$	M1 M1 A1	
		3	
16.	$2^{3(2x+1)} x 2^{-6} = 2^4 \div 2^{2x}$ $6x + 3 - 6 = 4 - 2x$ $x = \frac{7}{8}$	M1 M1 A1	
		3	
17. a) b) c)	**SECTION II** $\frac{5}{100} x 200,000 + \frac{7.5}{100} x 22,000$ $= 5000 + 26500$ $= 31,500$ $28125 - (5000 + 10,000)$ $\frac{7.5}{100} X = 13125$ $x = 175,000$ $\frac{9}{100} X 450,000$ $5000 + \frac{5}{100} X 200,000 + \frac{7.5}{100} X 250,000$ $= 33,750$ $\frac{40,000 - 33750}{33750} X 100\%$ $= 20\%$	M1 M1 A1 M1 M1 A1 M1 M1 M1 A1	
		10	

18.			

fd	4	6	2.5	4
cf	20	140	190	230

Each bar correctly drawn — B1
5x4+6x10+20x2.5+10x4=170 — B1
Line correctly drawn — B1
Median=21.5 — B1
Median class 10-19 — B1
M1
B1
B1



10

19.a)

$$Cos\theta = \frac{250^2 + 320^2 - 440^2}{2x250\,x320}$$ — M1

$$\theta = 100.33^0$$ — A1

$$A = \frac{1}{2} X250\,X320 \quad Sin \quad 100.33$$ — M1

$$\frac{39351.65}{10000}$$ — M1

$$= 3.9352\,ha$$ — A1

For area of circle

$$2R = \frac{440}{Sin100.33}$$ — M1

$$R = 223.6$$ — M1

$$A = \frac{22}{7} x223.6^2 - 39351.65$$ — A1

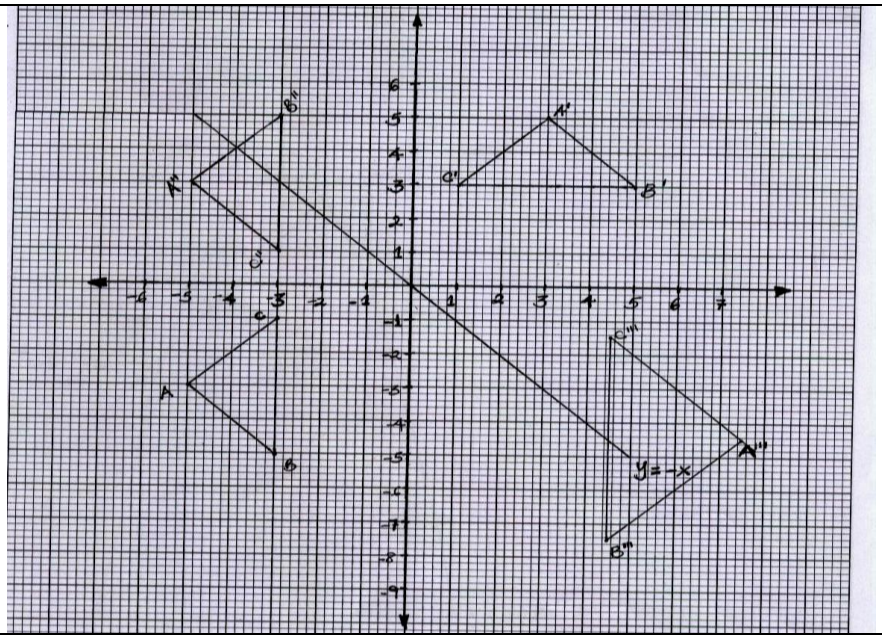
$$= 117,781.7m^2$$ — A1

For diff

10

20. *i*) $60xh = 280$ — M1

$h = 4.667$ — A1

	ii) $\frac{x}{y}=\frac{3}{5}$ $x=\frac{3}{5}y$ $\frac{3}{5}y^2=60$ $y=10$ $x=6$ iii) $\sqrt{10^2+6^2}$ $=11.66$ $\sqrt{5.83^2 X 4.667^2}$ $=7.468$	M1 M1 A1 B1 M1 A1 M1 A1 10	
21.	ΔABC *drawn* *Line* $y=-x$ *drawn* $\Delta\ A^IB^IC^I$ *draw* *Rotation* $\Delta\ A^{II}B^{II}C^{II}$ *drawn* $A^{II}(-5,3),B^{II}(-3,5),C^{II}(-3,1)$ $\Delta\ A^{II}B^{II}C^{II}$ *drawn* Enlargement , centre(0,0) s.f.-1.5 $T\begin{pmatrix}-2.5\\-6\end{pmatrix}$ B^4 (2,13.5) C^u (2,–7.5)	B1 B1 B1 B1 B1 B1 B1 B1 B1 B1	For both
		10	
			
22.a) b)	40x+25y-380,000 35x+18y=301,500	B1 M1 M1 M1 A1	

$$\begin{pmatrix}40 & 25\\ 35 & 18\end{pmatrix}\begin{pmatrix}x\\ y\end{pmatrix}=\begin{pmatrix}380,000\\ 301,500\end{pmatrix}$$ M1

$$\frac{-1}{155}\begin{pmatrix}18 & -25\\ -35 & 40\end{pmatrix}\begin{pmatrix}40 & 25\\ 35 & 18\end{pmatrix}\begin{pmatrix}x\\ y\end{pmatrix}=\frac{-1}{155}\begin{pmatrix}18 & -25\\ -35 & 40\end{pmatrix}\begin{pmatrix}380,000\\ 301,500\end{pmatrix}$$ M1 A1

$$\begin{pmatrix}1 & 0\\ 0 & 1\end{pmatrix}\begin{pmatrix}x\\ y\end{pmatrix}=\begin{pmatrix}4500\\ 8000\end{pmatrix}$$ M1 A1

Maize x=4500
Beans= y=8000

c) *i*) $A=\frac{120}{100}x450\,x40+\frac{85}{100}x8000\,x25$

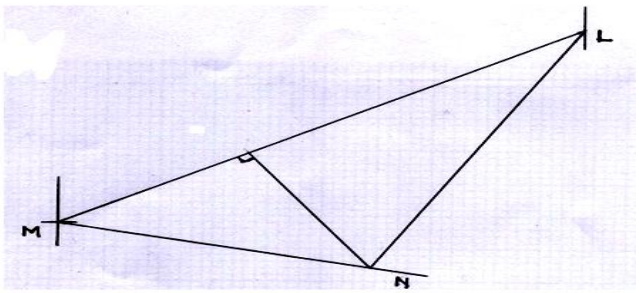
$=386,000$

ii) $A=\frac{110}{100}x386,000$

$=424,600$

10

23.



B1 B1 B1 B1 B2 B2 B2

ii) $4.4x50=220km\pm5$
iii) $8.5x50=425\pm5$
iv) 200^0

10

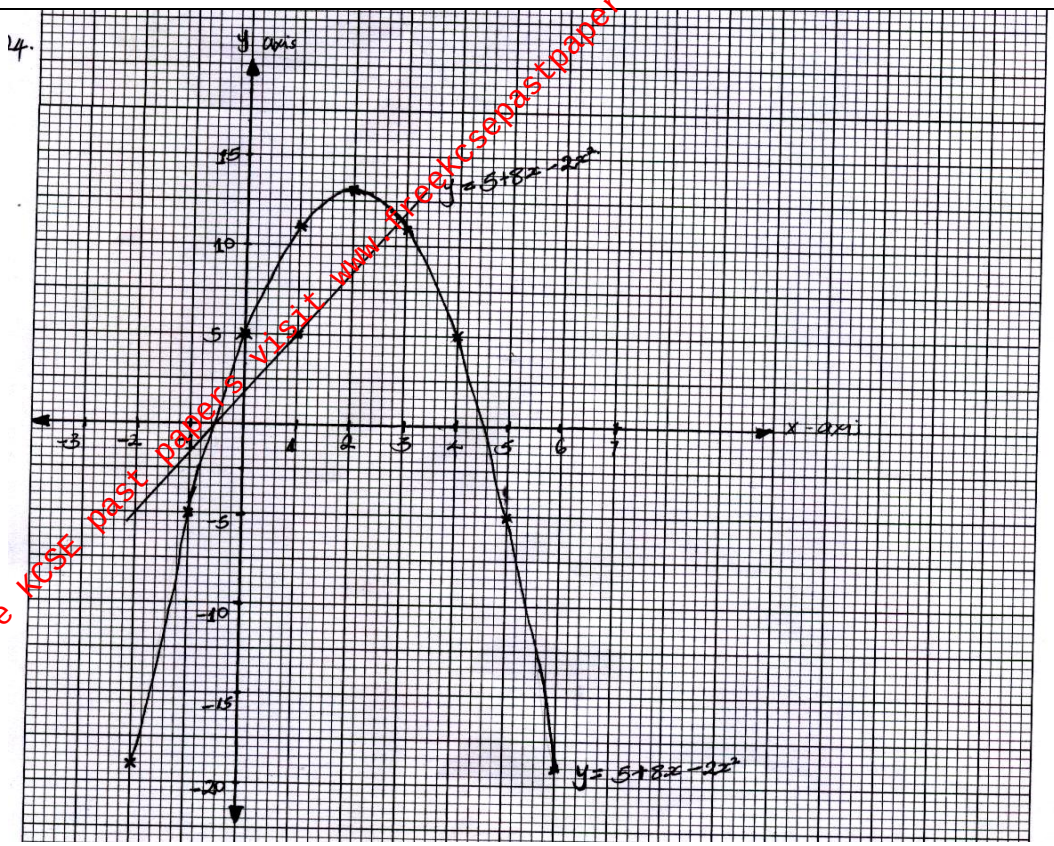
24. a) $y=5+8x-2x^2$

x	-2	-1	0	1	2	3	4	5	6
8x+5	-11	-3	5	13	21	29	37	45	53
$-2x^2$	-8	-2	0	-2	-8	-18	-32	-50	-72
y	-19	-5	5	11	13	11	5	-5	-19

B2 For all values√
B1 For at least 5 values of y√

b) Graph drawn on graph paper

S1
P1 √ Scale used
C1
B1

	4.  c) i) x=-0.6 & 4.6 ± 0.1 $y = 5 + 8x - 2x^2$ ii) $0 = 3 + 5x - 2x^2$ - $y = 2 + 3x$ x 0 1 -1 y 2 5 -1 x=-0.6 &11 d) Line x=2	B1 L1 B1	
		10	

