FORM TWO TERM ONE EXAM 2017

MATHEMATICS
MARKING SCHEME
PAPER 2

SCHOOLS NET KENYA
Osiligi House, Opposite KCB, Ground Floor
Off Magadi Road, Ongata Rongai | Tel: 0711 88 22 27
E-mail:infosnkenya@gmail.com | Website: www.schoolsnetkenya.com

EXAMINATION
121/2 MATHEMATICS
MARKING SCHEME

1.	$\sqrt{\frac{0.8064 \times 1000}{1.008 \times 10000} \times \frac{6.048 \times 10000}{0.134 \times 1000}}$ $\sqrt{\frac{80.64 \times 6048}{4008 \times 1344}}\ 9$ 4 2 4 x 9 = 36	B 1 B 1 A1
2.	-4 (-4 ⅓) - 12 3 5 $\frac{-4 \times -8}{-4}$ -8	B1
3.	Sin (2θ 30^0) Cos 4θ 0 Sin (20 30^0) Cos 4θ A 1 B 1 90^0 Θ $\frac{120^0}{6}$ =20^0	A1 B 1 B1 A 1
4.	Let 52x be U $5^{2X}(5^3)$ $20(5^{2X})$ = 625 25U 20U = 625 125 ~~5U~~ = ~~625~~ ~~5~~ ~~5~~ U = 125 52x 53 2x = 3 X = $^3/_2$	B1 B1 A 1
5.	The sum of n sides polygon in degrees (n -2) 180^0 Angles in quadrilateral add up to 360^0 5 (x + 4) + 4(x + 5) + 2(x + 10) + (x +20) + 360^0 (x+20) = 360^0 12x = 360 X = 30^0 Interior angles 5(x+4)=170^0 4(x+5)=140^0 2(x+10)=40^0 X+20=10^0	A 1 B 1 B 1

	Exterior angles	B2 for all 4 angles correct

	180^0 170^0 10^0 180^0 140^0 40^0 180^0 40^0 140^0 180^0 10^0 170^0	B1 for two three angles correct No mark for 1 or less correct angles
6.	140 x 1240 1736 100 Selling price 75 x 1736 100 Ksh 1302	B 1 B 1 A 1
7.	Co-odinates A are (-1,7) B are (3,-5) C are (6,-4) AB $\begin{pmatrix}3\\5\end{pmatrix} - \begin{pmatrix}-1\\7\end{pmatrix} \quad \begin{pmatrix}4\\-12\end{pmatrix}$ BC $\begin{pmatrix}0\\4\end{pmatrix} - \begin{pmatrix}3\\-5\end{pmatrix} \quad \begin{pmatrix}-3\\9\end{pmatrix}$ 4BC -3 -3 AB hence BC parallel to AB. They share a common point B hence collinear.	B 1 B 1 B 1
8.	1 man $\begin{pmatrix}2\\4\end{pmatrix}$ x 1 in 3 days 4 hr a day 1 man $\begin{pmatrix}2\\4\end{pmatrix}$ x $\begin{pmatrix}1\\4\end{pmatrix}$ in 3 days 1 hr a day 1 man $\begin{pmatrix}2\\4\end{pmatrix}$ x $\begin{pmatrix}1\\4\end{pmatrix}$ x $\begin{pmatrix}1\\3\end{pmatrix}$ acres in 1 day 1 hr a day $\begin{pmatrix}2\\4\end{pmatrix}$ x $\begin{pmatrix}1\\4\end{pmatrix}$ x $\begin{pmatrix}1\\3\end{pmatrix}$ x 5 x 4 x 3 men $\begin{pmatrix}2\\4\end{pmatrix}$ x $\begin{pmatrix}1\\4\end{pmatrix}$ x $\begin{pmatrix}1\\3\end{pmatrix}$ x 4 days x 3 days 1 man 0.5 acres 4 day in 3 hrs 1 day 5 half 0.5 0.5 10 men	B 1 B 1 A 1
9.	$(30cm^3)$ 12 ASF $\frac{\cancel{108}}{\cancel{12}}$ 3 LSF ASF 3 V? VSF (LSF^3) 2 $\frac{810}{V1}$ 27 V1 = $\frac{810}{27}$ $= 30cm^3$	 V = 810	B 1 B 2 A 1

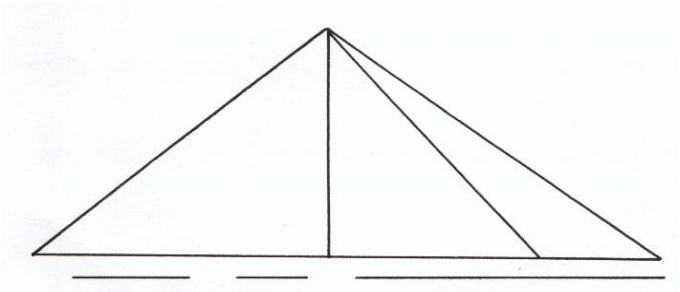
10.	Area of triangle ADB is $^1/_2$ x 7 x 125 to 60^0	B1

	$7 \times 6 \sin 60^0$ $= 36.37\ cm^2$ b) Area of unshaded sector $\frac{60}{360} \times \frac{22}{7} \times 7 \times 7 = 25.6667$ Shaded area 36.37 25.67 $10.7\ cm^2$	A1 M1 B1
11.	$-7 \times X < 3x + 2$ $2x < 9, x7$ 4-5 $3x+2<4(x\ \ 5)$, $3x + 2 < 4x\ \ 20$ $-x < -22$, $x > 22$ If $x > -5$ and $x > 22$ 22	M1 M1 A1
12.	$(3.5)\begin{bmatrix} 2p & \sqrt{x} \\ & 3x-5 \end{bmatrix}$ $(3x\ \ 5)95^2$ $4p^2 \times x \times 3x\ \ 5$ $27x\ \ 5^2$ 455^2 $4p^2x$ $27x5^2 - 4p^2x\ \ 455^2$ $X(275^2\ \ 4p^2)\ \ 455^2$ $X\ \ 455^2$ $275^2\ \ 4p^2$	Square both sides M1 M2 A1
13.	Max val of x 13.45 min 13.35 Max val of y 4.35 min 4.25 Max value of x $\frac{13.45}{Y\ 4.25}$ 3.1647 Max value of x $\frac{13.35}{Y\ 4.35}$ 3.069 Actual value of x 13.4 3.1163 Y 4.3 Absolute error $\frac{3.1642\ \ 3.069}{2}$ 0.04785 Pere em 0.04785×100 0.015355×100 3.1163 1.5355%	B1 B1
14.	Gradient of AB is $\frac{M-1}{4\ \ 2}$ $\frac{M-1}{2}$ Gradient product is -1 Gradient of second line Y 5 2x is 2 3 3 $\frac{m-1}{2}$ 3 2 $2m - 2 = 6$ $2m = 8$ $M = 4$	

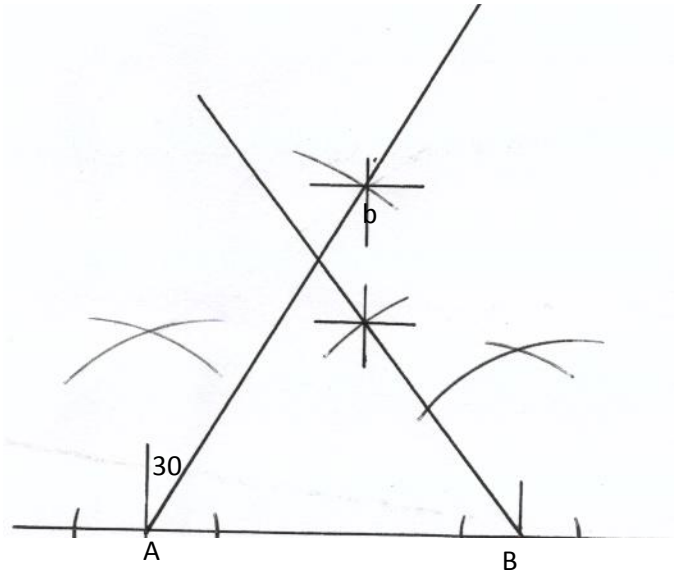
15.	Principal p amount 2p 2p p(I + 10)n 2p - p (1+0.1)n 100 p p 2 (1 1)n Log 2 n log 1.1 N log 2 0.301 Log 1.1 0.0414 N = 7.27 Round upto 8 N = 8 yrs	B1 B1 A1
16.	P(black) and p(brown) or p(brown and p(black) $\left[\frac{5}{8} \times \frac{3}{7}\right] \times \left[\frac{3}{8} \times \frac{4}{7}\right]$ 15 3 56 14 27 56	B1 B1 A1

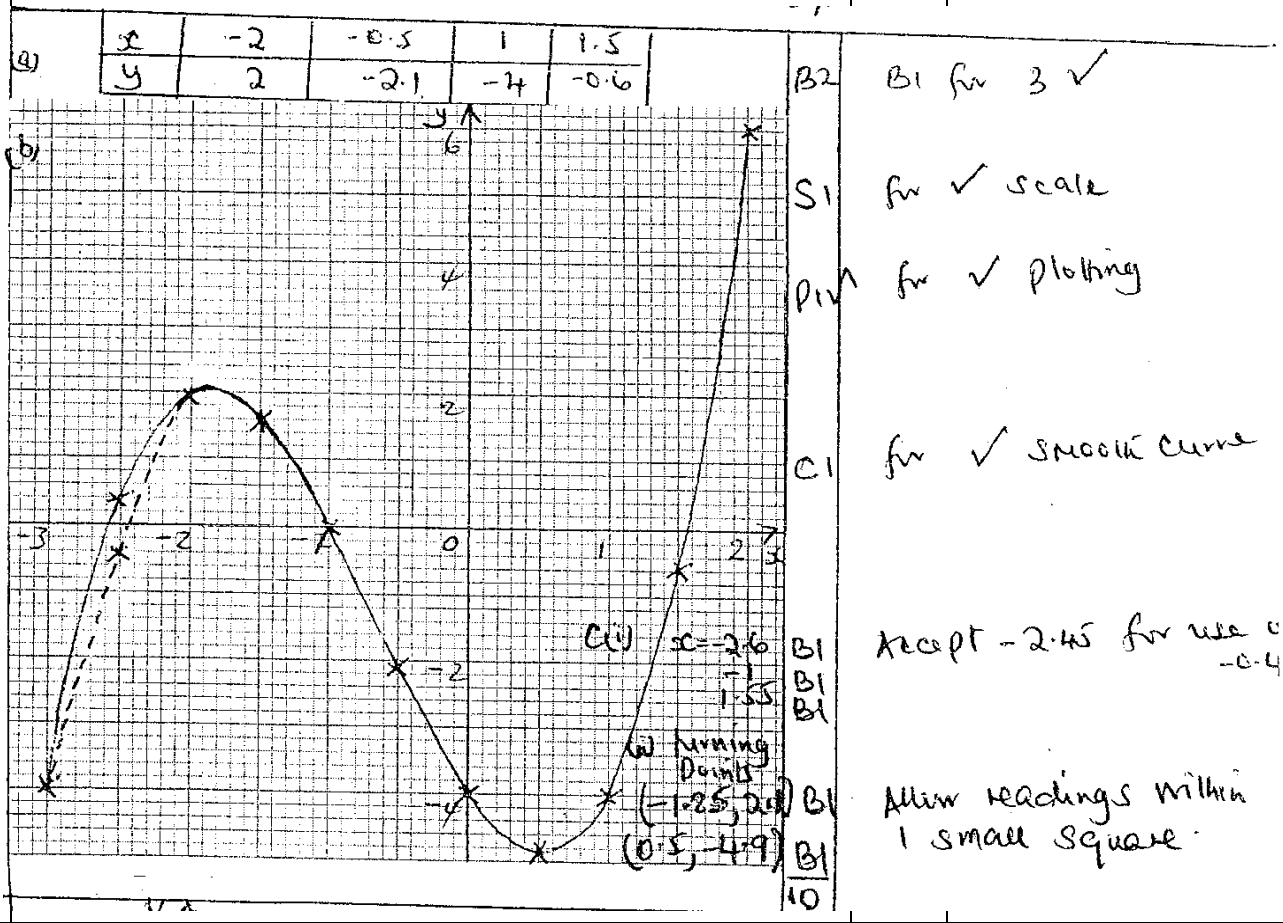
17	400km Nairobi ⟶ busia Speed = 120 km/hr Distance = 400 km Time = 400 120 = 3hrs 20min 8.30 + 3 hrs 20min 11: 50 a.m b) at 8.30 am distance covered by bus ½ x 80 = 40km Distance left = 360 km Speed = 2000km/hr Time = 360 = 1 hr 48 min 200 They met at 8.30 + 1 hr 48min 10.18 am c) 8 – 10.18 is 2 hrs 18min Distance = 2 x 80 + 18 x 80 60 160 + 24 184km from Nairobi. d) Car arrived in Nairobi after 3 hrs 20 min bus travelled at a time of	 M1 A1 B1 B1 M1 A1

	3hrs 20 min + 30 min = 3hrs 50 min Dist = 3 x 80 = $\frac{50}{60}$ x 80 = 240 + 66 $^1/_3$ = $93^1/_3$km Distance from Busia is $93^1/_3$ km	M1 A1 M1 A1

18	ABC Y - = -x drawn $A^1B^1C^1$ draw (rotated) $A^{11}B^{11}C^{11}$ draw (translated) $A^{111}B^{111}C^{111}$ Enlarged A^{1v} (2,6) B^{1v} (0,0) C^{1v} (-6,2)	B1 B1 B2 B2 B2 B1
19	 $x^2 + x^2 = (56 -2x)^2$ $2x^2 = 4x^2 – 224x + 3136$ $2x^2 - 224x + 3136 = 0$ $X^2 – 112x + 1568 = 0$ X (x –16) – 98 (x – 16) = 0 (x-16) (x – 98) =0 X = 16 or 98	M1 M1 M1

	Height = 16 cm Tan θ = 16 = 0.4575 35 = 24.57° b) ST = $\sqrt{16^2 + 35^2}$ $= \sqrt{1481}$ = 38.48 c) Muximum distance = 35 ± 16 = 51	A1 M1 A1 M1 A1 M1 A1	
20	a) 50,00 + 6 x 62 5000 + 10000 x 250 100 50,000 + 37500 + 25,000 = 112,5000 b) i) 12000 x 2.5 + 0.06x + 50,000 = 134 000 30,00 + 50,000 + 0.06x = 134 000 0.06x = 134 000 – 80 000 0.06x = 54000 0.06 0.06 x = 900,000	M1 M1 A1 M1 M1 M1 A1	
	ii) increase = 900 000 – 625 000 = 275,000 % increase = 275 000 x 100 625 000 = 44 %	M1 M1 A1	
21	Distance covered in 90 min Bl P = 540km Q = 360 km	B1	

	Scale 1 cm = 10 000 000 cm 1 cm rep 100 km  Distance btwn plane 2,1 cm ± 0.1 2 10 ± 10 Bearing of plane Q from plane P 185 ± 1°	B1 B1 B1 B1 B1 B1 B1 B2	 For A & B 5cm 030^o & 5.4 to P 315^o & 3.6 to Q Completed diagram

23	a. x -4 -3 -2 -1 0 1 2 y -12 0 0 -6 -12 -12 0 c.x=-3.9,x=0.9,x=1.8  		
24.	a) ACC = $\frac{15-0}{20}$ = 0.75m/s^2 b) Dece = $\frac{0-15}{20}$ = - 0.75 c) Area = $\frac{1}{2}$ x 20 x 15 = 150ml d) Area = 20 x 15 = 300m e) Area = $\frac{1}{2}$ (30 + 60) X 15 = 675m	M1 A1 M1 A1 M1 A1 M1 A1 M1 A1	