MATHEMATICS

2019 TERM 2 EXAM

2019

Form 2

MARKING SCHEME

MATHEMATICS

SECTION I (50 MARKS)

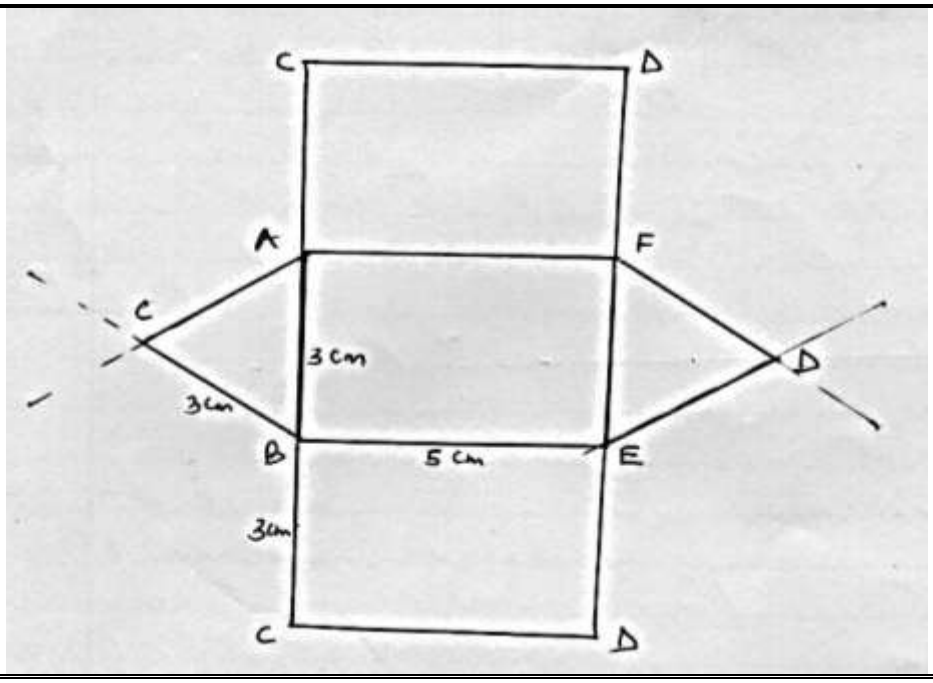
NO	WORKING	MARKS	REMARKS
1.	$\frac{1}{2} \times \frac{4}{9} = \frac{2}{9}$ $\frac{2}{5} \times \frac{9}{2} = \frac{9}{5}$		For the

	$\frac{9}{5} - \frac{11}{10}$ or $\frac{18-11}{10} = \frac{7}{10}$ $\frac{1}{6} \times \frac{3}{8} = \frac{1}{16}$ $\frac{7}{10} : \frac{1}{16} = \frac{7 \times 16}{10}$ $= 11\frac{1}{5}$	M1 M1 A1	Numerator For the denominator
		3	
2.	Let the number be x 2 | 30 | 45 | 54 3 | 15 | 45 | 27 3 | 5 | 15 | 9 3 | 5 | 5 | 3 5 | 5 | 5 | 1 | 1 | 1 | 1 L.C.M = $2 \times 3^3 \times 5 = 270$ $x = 270 + 21$ $= 291$	M1 M1 A1	Table
		3	
3.	$\frac{0.0084 \times 1.23 \times 3.5 \times 10^7}{2.87 \times 0.056 \times 10^7}$ $\frac{84 \times 123 \times 35}{287 \times 56 \times 100}$ $\frac{9}{40}$	M1 M1 A1	
		3	
4.	**No** | **Std form** | **Log** 45.3 | 4.5×10^1 | 1.6561 0.33697 | 6.97×10^{-3} | $\bar{3}.8432$ + | | $\bar{1}.4993$ 0.534 | 5.34×10^{-1} | $\bar{1}.7275$ –	M1 M1 M1	For ✓logs For attempt to add and sub Attempt to

	0.8392	8.392×10^{-1}	$\bar{1}.7718 \div 3$ $\bar{1}.9239$ **0.8392**	A1	divide by 3
				3	
5.	Exterior angle + interior angle = 180^0 Exterior angle = $180^0 - 150^0 = 30^0$ No of sides = $\frac{360^0}{30}$ = = 12 sides			M1 M1 A1	
				3	
6.	$2^{5(x-3)} \times 2^{3(x-4)} = 2^6 \div 2^x$ 5(x – 3) + 3(x + 4) = 6 x =1			M1 M1 A1	
				3	
7.	$7\left(\frac{1}{0.5283}\right) + 0.5\left(\frac{1}{3.735}\right)$ $13.2503 + 0.1339$ 13.3842			M1M1 M1 A1	
				4	
8.	2(3p+4e=87) 3(2p+5e=93) 6p+8e=174 6p+15e=279 7e=105 e=15 p=9			M1 M1	

	cost of exersice book= sh.15 cost of a pen=sh.9	A1	
		3	
9.	(a) $Amount\ in\ Kshs = 100\ 000 \times 77.24$ $= Kshs\ 7\ 725\ 000$ (b) $cost\ of\ the\ car\ in\ sterling\ £ = \frac{1725000}{120}$ $= S£\ 14\ 375$	A1 M1 A1	
		3	
10.	**(a)** $\frac{40\ 000}{1\ 600\ 000} \times 100\%$ $= \frac{5}{2} = 2.5\%$ **(b)** $S.P. = \frac{98}{100} \times 3\ 600\ 000$ $= sh.\ 3\ 528\ 000$ $Commision$ $= \frac{2.5}{100} \times 3\ 528\ 000$ $= ksh\ 88\ 200$	A1 M1 A1	
		3	
11.	$Density = \frac{mass}{volume}$ $\frac{300g}{20} = 15g/cm^3$ $15 \times 1000 = 15\ 000kg/m^3$	M1 M1 A1	
		3	
12.	$4158 = \frac{\theta}{360} \times \frac{22}{7} \times 63 \times 63$ $\theta = \frac{4158 \times 360 \times 7}{22 \times 63 \times 63}$ $\theta = 120^0$	M1 M1 A1	
		3	

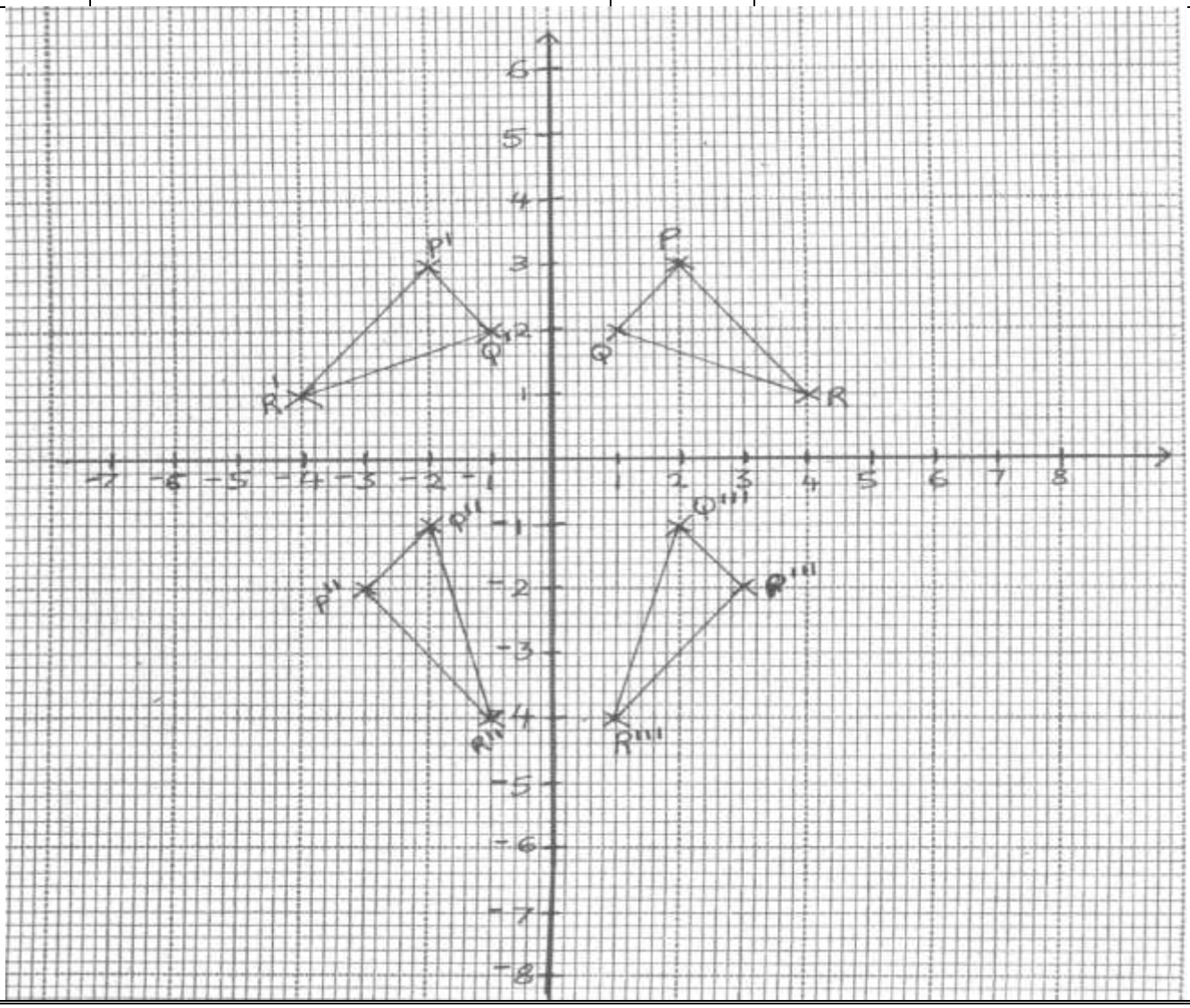
13.	Num: x(a+b)+y(a+b) (x+y) (a+b) Den: m(a+b)+n(a+b) (m+n)(a+b) $\frac{(x+y)(a+b)}{(m+n)(a+b)}$ $\frac{x+y}{m+n}$	B1 B1 A1	
		3	
14.	$\frac{+4 \times 4 - (-20)}{-6 \times \frac{6}{3} + (-6)}$ $= \frac{4 \times 4 + 20}{-6 \times 2 - 6}$ $= \frac{36}{-18}$ $= -2$	M1 M1 A1	
		3	
15.	$(3.461)^3 - \sqrt[3]{2809}$ $(3.461 \times 10^0)^3 - \sqrt[3]{2.809 \times 10^3}$ $41.458 \times 10^0 - 1.411 \times 10^1$ $41.458 - 14.11$ 27.348	M1 M1 A1	
		4	

16.		B1B1B1	
		3	

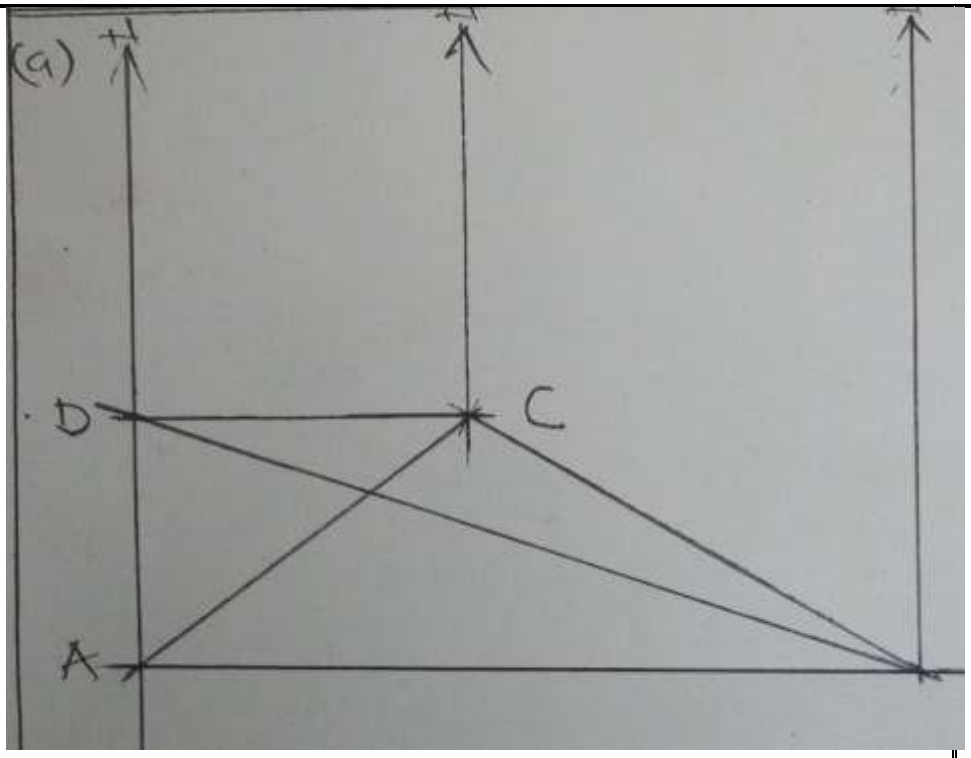
SECTION II (50 marks)

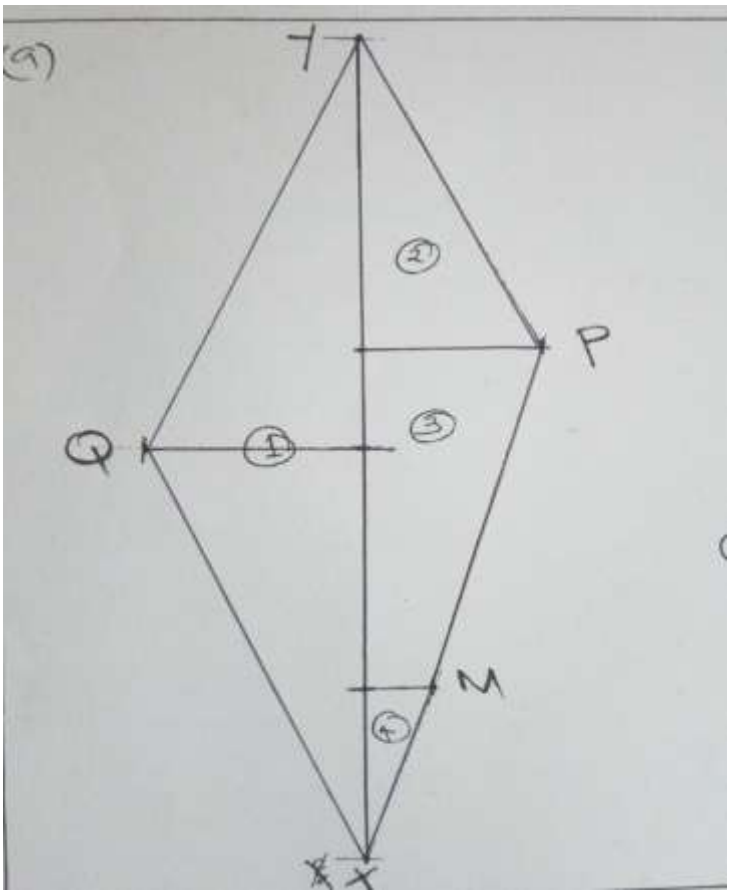
17.	**a)** $m = \frac{6-3}{-1--2} = 2$ $\frac{y-6}{x+1} = 3$ y-3x=9 y=3x+9 **b)** equation and p $\frac{y-6}{x+1} = -\frac{1}{3}$ x+3y=17 **c)** $\frac{y-2}{x-1} = 3$ y=3x-1 when x=0 y=-1 when y=0 x=$\frac{1}{3}$ **d)** Intersection of P and Q 3y+x=17 y-3x=-1 x=2 y=5 point of intersection (2,5)	M1 M1 A1 M1 M1 A1 M1 A1 M1 A1	Solve simultaneously

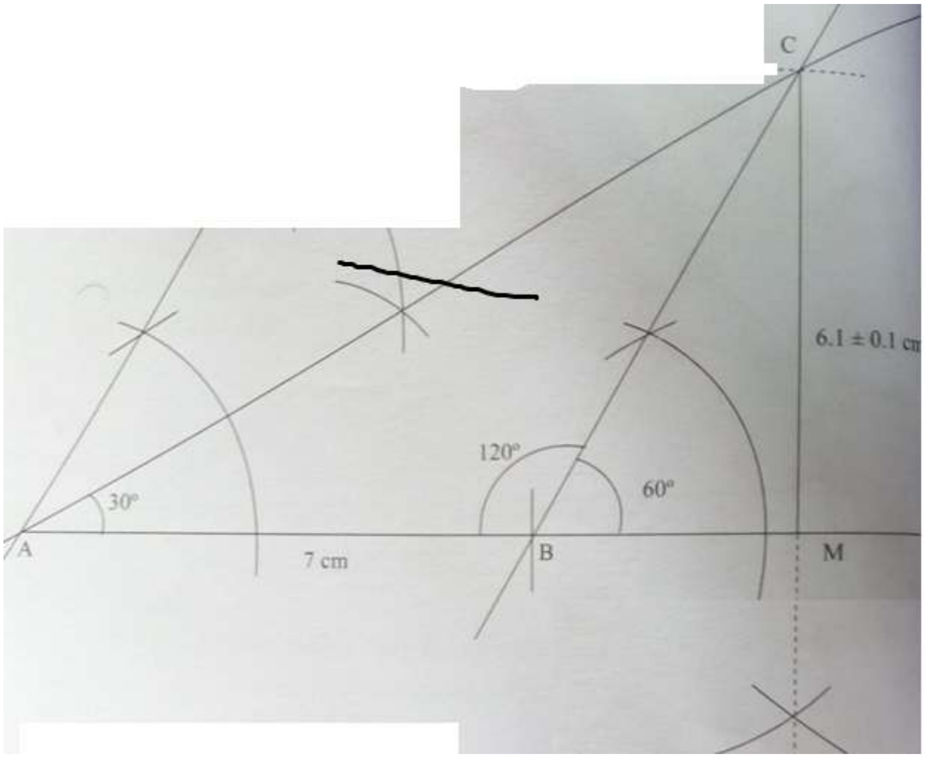
			10	
18.		(ii) Reflection on the y-axis $_{\text{or}}$ x=0 (b) (i) $P^{11}(-3,-2)$ $Q^{11}(-2,-1)R^{11}(-1,-4)$ (ii) Negative quarter turn about the origin (c) $P^{111}(3,-2)Q^{111}(2,-1)R^{111}(1,-4)$ (d) ΔPQR and $\Delta P^1Q^1R^1$ ΔPQR and $\Delta P^{11}Q^{11}R^{11}$ $\Delta P^1Q^1R^1$ and $\Delta P^{111}Q^{111}R^{111}$ $\Delta P^{11}Q^{11}R^{11}$ and $P^{111}Q^{111}R^{111}$	B1 B1 B1 B1 B1 B2	For the coordinate of $P^{11}Q^{11}R^{11}$ For $\Delta P^{11}Q^{11}R^{11}$ drawn -90^0 about (0,0) or 270 about (0,0) for coordinate of $\Delta P^{111}Q^{111}R^{111}$ for $\Delta P^{111}Q^{111}R^{111}$ drawn for four parts of Δs B1 for at least 2 pairs of Δs



		10	
19.	(a) (i) $90\% \equiv 900000$ $100\% \equiv ?$ $\frac{100}{90} \times 900000$ =1 000 000 (ii) $1120\% \equiv 900000$ $100\% \equiv ?$ $\frac{100}{120} \times 900000$= 750 000 (b)profit = 1000 000 – 750 000 = 250 000 %profit = $\frac{250000}{750000} \times 100\%$ = $33\frac{1}{3}\%$ (c) profit per car = 1 000 000 – 750 000 = 250 000 Total profit = 250 000 x 20 = 5 000 000	M1 M1 A1 M1 A1 M1 M1 A1 M1 A1	

20.			
	(b) (i) Bearing of C from A $052^0 \pm 1^0$	B1	
	(ii) Distance of C from D $3.8cm \pm 0.1 \times 20$ $= 76 \pm 2km$	M1 A1	
	(iii) Bearing of B from D $108^0 \pm 1^0$	B1	
	(iv) Distance of A from D $3.0 \pm 0.1 \times 20$ $= 60 \pm 2km$	M1 A1	
		10	

21.	(a)  (b) Area of the field Area of 1 = $\frac{1}{2} \times 240 \times 60$ $= 7200m^2$ Area of 2 = $\frac{1}{2} \times 90 \times 50$ $= 2250m^2$ Area of 3 = $\frac{1}{2} \times (20 + 50) \times 100$ $= 3500m^2$ Area of 4 = $\frac{1}{2} \times 50 \times 20$ $= 500m^2$ Area of the field $= 13450m^2$ Area in Ha = $\frac{13450m^2}{10\ 000}$ = 1.345 Ha (c) Cost of the field $= 1.345 \times sh. 900\ 000$ $= sh. 1\ 210\ 500$	B1 B1 B1 B1 M1 M1 M1 A1 M1 A1	
		10	

22.	(a)	B1 B1 B1	Line AB drawn Angle ABC and ABC drawn Triangle ABC
			
	(b) (i) Line BC = $7.0 \pm 0.1cm$ (ii) Line BC = $12.0 \pm 0.1cm$	B1 B1 B1 B1	
	(c)	B1 B1	Dropping perpendicular M labeled
	(d) CM = 6.1 $\pm 0.1cm$	B1	
	(e) $Area = \frac{1}{2} \times 7 \times 6.1$ $= 21.35 \ \pm 0.35$	M1 A1	
		10	

23.	(a) External volume = $\frac{22}{7} \times 6.3^2 \times 350 = 43659\ cm^3$	M1	
	Internal volume = $\frac{22}{7} \times 2.8^2 \times 350 = 8624\ cm^3$	M1	
	Volume of the pipe		
	= $43659\ cm^3 - 8624\ cm^3$	M1	
	$= 35\ 035 cm^3$	A1	
	(b) Radius of the solid cylinder		
	$\frac{22}{7} \times r^2 \times 175 = 35\ 035 cm^3$	M1	
	$r^2 = \frac{35\ 035 cm^3 \times 7}{22 \times 175}$	M1	
	$r^2 = 63.7$	M1	
	$r = \sqrt{63.7}$ = 7.98cm	A1	
	(c) mass = volume x density		
	= 35 035 x 4.2	M1	
	= 147 147 grams = 147.147kg	A1	
		10	

24. **(a)**

Kamau	Gachui	Maina
3	2	
	1	3

$\frac{3\times1}{2} : 1 : 3 = 3 : 2 : 6$ M1

The ratio of Kamau's contribution to Maina's contribution is $3 : 6 = 1 : 2$ M1 A1

(b) Kamau's contribution

$$= \frac{3}{11} \times 1\,210\,000$$ M1

$$= kshs.\,330\,000$$ A1

(c)

(i) Amount reatined for running the business

$$= \frac{40}{100} \times 704\,000$$ M1 M1

$$= kshs.\,281\,600$$ A1

(ii) Amount set aside for emergencies

$$= \frac{10}{100} \times 704\,000$$ M1 M1

$$= kshs.\,70\,400$$ A1

(iii) The amount of received by Gachui

$$= \frac{50}{100} \times 704\,000$$

$$= kshs.\,352\,000$$ M1

$$= \frac{2}{11} \times 352\,000$$ M1 M1

$$= kshs.\,64\,000$$ A1 A1

		10	