TERM ONE MATHEMATICS

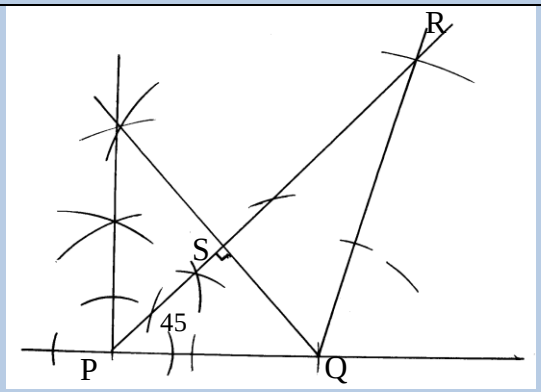
FORM 2

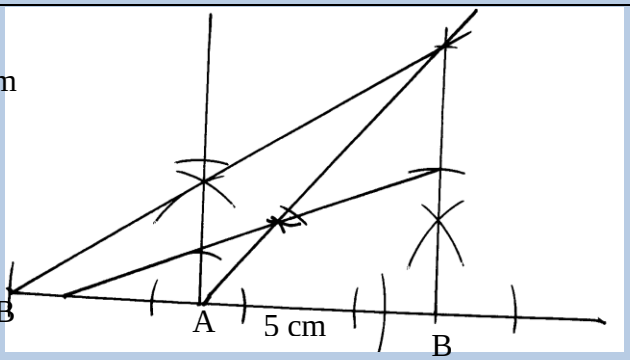
MARKING SCHEME.

1.	(a) (i) thousand. (ii) 3 x 1000 = 3000 (b) Four hundred and seventy three thousands, six hundred and forty five.	B 1 B1 B1 B1	
		4mks	
2.	$N = \frac{3}{4} + \frac{12}{7} \div \frac{4}{7} \times \frac{7}{3}$ $\frac{3}{4} + \frac{\cancel{12}^{3}}{7} \times \frac{3}{\cancel{4}}$ $\frac{3}{4} + \frac{9}{4} = \frac{21 + 36}{28}$ $= \frac{57}{28}$ $D\left(\frac{10}{7} - \frac{5}{8}\right) \times \frac{2}{3}$ $\left(\frac{80 - 35}{56}\right) \times \frac{2}{3}$ $\frac{\cancel{45}^{15}}{\cancel{56}^{28}} \times \frac{\cancel{2}^{1}}{\cancel{3}} = \frac{15}{28}$ $\therefore \frac{57}{28} \div \frac{15}{28} = \frac{\cancel{57}^{19}}{\cancel{28}} \times \frac{\cancel{28}}{\cancel{15}_{5}}$ $= \frac{19}{5}$ $= 3\frac{4}{5}$	B1 B1 M1 A1	
		4mks	
3	$7b + 4p = 207$ $5b + 5p = 165$ $35b + 20p = 1035$ $\underline{20b + 20p = 660}$ $15b = 375$ $b = 25$ $5p = 165 - 125$	B1 M1 M1 A1	One eq. Elimination for substitution For both values.

	= 40 ∴ p = 8		
		4mks	
4	$\frac{-4+108-24}{8 \times 2} = \frac{80}{16} = 5$	B1 B1 B1	BODMAS SIMPLIFY 80/16
		3mks	
5	Total amount = (50 x 80,000) + 120,000 = (4,000,000 + 120,000 = sh. 4,120,000 Amount for each child $= \frac{4120000 - 520000}{6}$ = sh. 600,000	 M1 A1 M1 A1	
		4mks	
6.	$60 = 2^2 \times 3^2 \times 5$ $90 = 2^2 \times 3^2 \times 5$ $180 = 2^2 \times 3 \times 5$ G.C.D = 2 x3 x5 = 30 Greatest vessels = 30 litres.	 B1 M1 B1	
		3mks	
7.	L.C.M of 6 and 8 6 = 2 x 3 8 = 2 x 2 x 2 G.C.D = 2 L.C.M = $\frac{\text{product of all factors}}{\text{G.C.D}}$ $= \frac{(2 \times 3)(2 \times 2 \times 2)}{2}$ = 3 X 8 = 24 Minutes	 M1 A1	Alternative 2 | 6 | 8 2 | 3 | 4 2 | 3 | 2 3 | 3 | 1 | 1 | 1 LCM = $2^3 \times 3$ M1 = 24 minutes A1
		2mks	
8.	Let x = 0.1515… 100 x = 15.1515…. x = 0.1515 99x = 15 $x = \frac{15}{99}$ $= \frac{5}{33}$	 M1 A1	
		2mks	
9	$\frac{6(x+1)}{2} + 6\left(\frac{2x+1}{3}\right) = 9 \times 6$ 3 (x + 1) + 2 (2x + 1) = 54 3x +3+ 4x + 2 = 54 7x = 54 – 5 7x = 49 x= 7	B1 M1 M1 A1	Multiply L.C.M Collecting like terms.

		4mks	
10	$x^o = (180^o - 130^o) = 50^o$ alternate angles $y^o = (130 - 70)\ 60^o$ opposite interrior angles	B1 B1	
		2mks	
11.	Area of triangles $= \frac{1}{2} \times 6 \times 12 \times 2$ $= 72\ cm^2$ Area of rectangles $= 8 \times 12 \times 2$ $= 192\ cm^2$ Area of a square (base) $= 12 \times 12$ $= 144$ S.A $= 72 + 192 + 144$ $= 408\ cm^2$	 M1 M1 A1	
		3mks	
12.	$\frac{3(2) + 2(3) + 2(2^2) - 6(3)}{4(2) - 2(3)}$ $\frac{6 + 6 + 8 - 18}{8 - 6}$ $= 1$	M1 M1 A1	
		3mks	
13.	A:B 2(3:2) B : C 1(4:1) A:B:C	A : B (6 :4) B: C (4 :5) 6:4:5	 M1 A1
		2mks	
14.	Perimeter of semicicle + permieter of rectangular part $\left\{\left[2 \times \frac{22}{7} \times 35\right] + 2(100)\right\}$ $= 220m + 200m$ $= 420m$ Distance covered $= 25 \times 420$ $= 10500m$ $1km = 1000m$ $x = 10500m$ $= \frac{10500}{1000}$ $= 10.5$ km	 M1 M1 A1 B1	
		4mks	
15.	No. of use Dollars = 30,000 79	M1	

	= $ 379.75	A1	
		2mks	
16.	$x + 24 = 4x - 30$ $3x = 54$ $x = 18$ $\angle QP R = 42$ $\angle PQR = 42$ $\therefore QP R = 84$	 B1 B1 B1	
		3mks	
17	a)  b) PR = 10.8 ± 0.1 $\angle PQR = 109 \pm 1^o$ c) (i) QS = 3.5 ± 0.1 (ii) Area = ½ x 3.5 x 10.8 $\approx 18.9\ cm^2$	B 1 B1 B1 B1 B1 B1 B1 M1 A1	R
		10mks	
18.	(a) (i) 5148 = 2 x 2 x 3 x 3 x 11x 13 $= 2^2 \times 3^2 \times 11 \times 13$ (ii) 6084 = 2 x 2 x 3 x 3 x13 x 13 $2^2 \times 3^2 \times 13^2$ (b) (i) $\frac{(5148)^2}{\sqrt{6084}}$ $= \frac{(2^2 \times 3^2 \times 11 \times 13)^2}{\sqrt{2^2 \times 3^2 \times 13^2}}$ $= \frac{2^4 \times 3^4 \times 11^2 \times 13^2}{2 \times 3 \times 13}$ $= 2^3 \times 3^2 \times 11^2 \times 13$ ii H.C.F = $2^2 \times 3^2 \times 13$ L.C.M = $2^2 \times 3^2 \times 11 \times 13^2$	 M1 A 1 M1 M1 M1 A1 B1 B1	
		10mks	
19.	a) (i) volume = $3.142 \times 5^2 \times 10m^3$ = 785.5 x 1000li = 785500litre	M1 M1 A1 M1	

	(ii) Time taken to fill the tank = $\frac{785500}{29 \times 3600}$ = 7hrs 30min. Time the tank is full = 2030 + 7.30 = 2800 – 2400 = 4.00am b) No. of days = $\frac{785,500}{250,000}$ = 3days	A1 M1 A1 M1 M1 A1	for calculation
		10mks	
20	1 cm = 1m  (i) L of evaluent = 80^o or 30^o (ii) 5.2 ± 0.1m (b) Distence of Lorry = 7.5 ± 0.1	B1 B1 B1 B1 B1	For locating A For locating B For L 45 drawn Locations top
21	(a) Fraction for maize and beans = ½ + $^1/_5$ = $^7/_{10}$ Remainder = $1 - \frac{7}{10} = \frac{3}{10}$ A ∴ Fraction for grazing = $\frac{1}{3}$ of $\frac{3}{10} = \frac{1}{10}$ Remainder = $\frac{2}{10}$ or $\frac{1}{5}$ Hence fraction for Hort. = $\frac{1}{5}$ Land fro grazing = 10 ha = $\frac{1}{10}$ of whole land. ∴ whole land is 10 x 10 = 100 ha Hence land used for horti = $\frac{1}{5}$ x 100ha = 20ha	B1 B1 M1 A1	
	(b) Total number of shares = 6 Wife's share = $\frac{1}{6}$ x 2,116,800 = sh. 352,800 Son's share = $\frac{3}{6}$ x 2,116,800 = sh. 1058,000 Son finally got. = 1058,000 + ½ of sh. 352,800	M1 A1 M1 A1 M1	

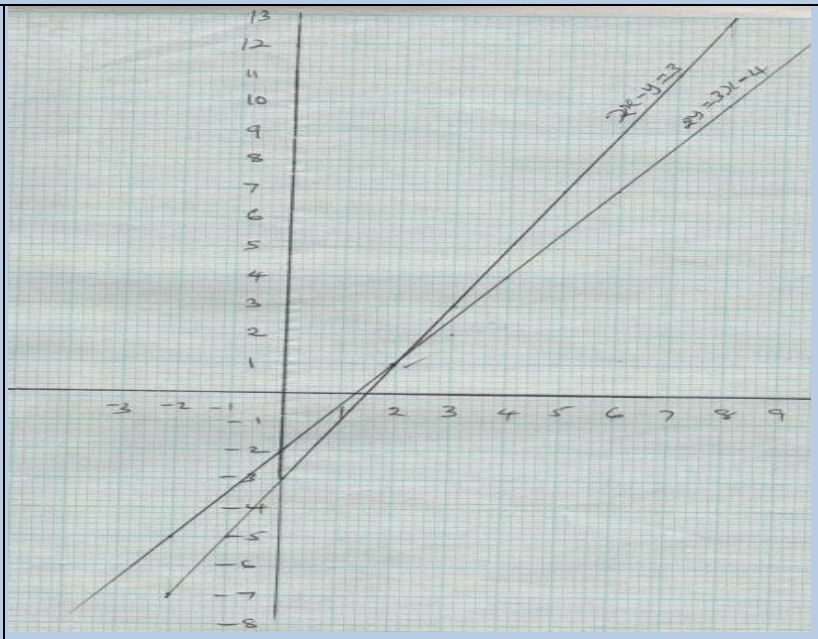
	= 105800 + 176,400 = sh. 1,234,800	A1	
		10mks	
22.	a) let selling price = 100 % Agent's commision = 7 ½ % Owner eceived =100 – 7 ½ = 92 ½ % ∴ 92 ½ % = 222000 1% = 22200 ÷ 2/185 x 100 Agent received = sh 240,000	B1 M1 A1	
	b) Rono received sh. 222000 incuring a loss of 25 % Rono received 75% of the price he had paid ∴ 75 % = 222,000/= 1% = 222,000/75 ∴ 100% = 222,000/75 x 100 Rono paid = sh. 296,000	M1 A1	
	c) Take price of new car = 100 % Rono paid (100-26) = 74 % of new ∴ 74 % = sh 296,000 1% = 296,000/74 100 % = 296,000/74 x 100 Price of new car = sh. 400,000 b) Amount Rono received = sh 222,000 price of new car = sh. 400,000 ∴ required % age = 222 000/400000 x 100 = 55.5 %	B1 M1 M1 M1 A1	
		10mks	
23.	2x – y = 3		

x	-4	-2	0	3	5	7	8
Y		-7	-3	3		11	13
Points		(-2,-7)	(0,-3)	(3,3)		(7,11)	(8,13)

B1

x	-2	0	2	4	6	8	10
Y= (3x – 4)/2	-5		1	4	7	10	
Points	(-2,5)		(2,1)	(4,4)		(6,7)	(8,10)

B1

	 (e) (2,1) (d) P (1 ½ ,0) Q (0,-3)	 B1 B1 B1	
24	(i) 2325 – 2015 = 3hr 10mi 0640 – 0310 = 3hr 30mi 2100 – 0820 = 12hrs 40 mi 3415 – 22 55 = 11hr 20min Travelling time = 6hrs 40 + 24 = 30hrs 40 min (ii) 2710 – 23 25 = 3hr 45 min 0820 – 0640 = 1 hr 40min 2255 – 21000 = 1hrmin Stoppage time = 3hrs 45 + 3 hr 35m = 7hrs 20min (iii) time for whole journey 30 hrs 40min + 7hrs 20 min = 38hrs b) distance = 60 x 3 = 2280km.	 M1 M1 A1 M1 M1 A1 M1 A1 M1 A1	Alter 3415 – 2015= 14hrs Plus 24hrs 38hrs