NAME.....ADM NO..... .....SIGN.....CLS.....

NYABURURU GIRLS' NATIONAL SCHOOL
OUR LADY OF LOURDES

DATE DONE
INVIGILATOR
DATE DONE
DATE REVISED

MATHEMATICS
C.A.T 3
TIME: 2 $\frac{1}{2}$ HOURS
FORM 2
TERM 2

INSTRUCTIONS TO CANDIDATES

- Write your NAME and ADM NUMBER in the spaces provides above
- write the date of examination in the spaces provided
- This paper contains two sections: Section A and B.
- Answer all questions
- All answers should be written in the spaces provided in the question paper

FOR EXAMINER'S USE ONLY.

SECTION A

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

SECTION B

17	18	19	20	21	TOTAL

GRAND TOTAL

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1. Use mathematical tables to evaluate (4mks)

$$\sqrt{\frac{0.357 \times \tan 360^{\circ}}{92.72}}$$

2. Find the coordinates of the points where the line passing through A(2 ,6) and B(5 ,4) crosses the y and x axes. (3mks)

3. Solve the equation $\frac{5y}{3} - \frac{2y-5}{2} = \frac{y}{4}$ (3mks)

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4. In order to complete a job in 10 days, a company employs 30 men to work at a rate of 8 hours a day. How long will it take 20 men working at the rate of 12 hours a day to complete the same job (3mks)

5. Given that $\tan x^{\circ} = \frac{3}{4}$ and that x is an acute angle find;

   i) $\cos x^{\circ}$

   ii) $\sin (90 - x)^{\circ}$

6. P,Q and R are three quantities such that P : Q = 2:3 and Q: R = 4:5 . Find the ratio P:R. (3MKS)

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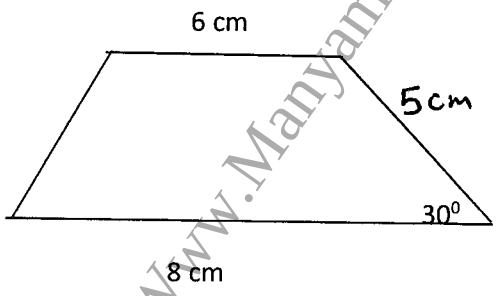
7. Solve for x

$4^{(x+1)} = \frac{1}{32}^{(2-x)}$ (3mks)

8. Calculate the area of the trapezium below. (3mks)



9. The ratio of the areas of two similar cylinders is 4:9. If the volume of the smaller cylinder is 120 cm^3, find the volume of the larger cylinder (3mks)

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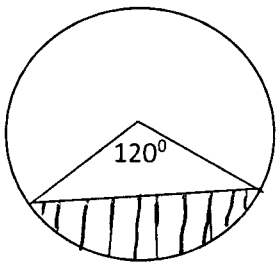
10. Use reciprocal and square root tables to evaluate (3mks)

$\frac{2}{347} + \sqrt{7329}$

11. From the top of a cliff 10m high the angle of depression of a boat sitting on the water below is 20^0. Calculate how far the boat is from the cliff. (3mks)

12. Calculate the area of the segment of the circle centre o and radius 7 cm as shown below. The angle at the centre is 120^0. (3mks)



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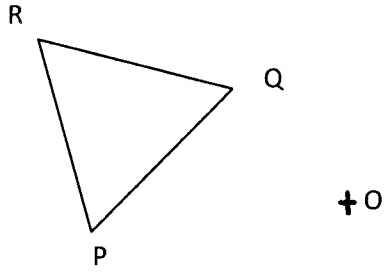
13. The triangle PQR below is rotated through negative 80^0 about the centre O. draw the image $P^1 Q^1 R^1$ of the triangle. (4mks)



14. Evaluate without using mathematical tables (2mks)

$$\frac{\sin 60}{\cos 30}$$

15. A wheel of diameter 14 cm rotates at 2500 revolutions per minute express its speed in in km/h (3mks)

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16. A tourist came to Mombasa with USA dollars 7518. While in Kenya he spends ksh 380,000. He later converts the balance to British pounds sterling. Use the table below to calculate how much he got in sterling pounds (3mks)

	Buying (ksh)	Selling (ksh
USA dollar	98.4	98.5
Sterling pound (£)	140.3	140.5

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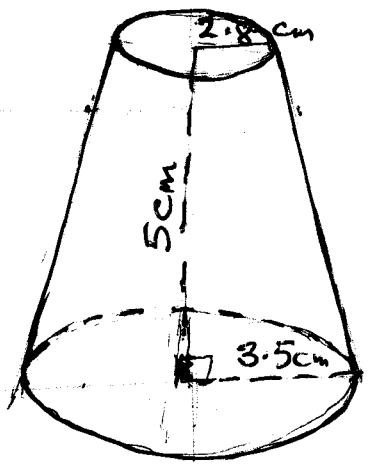
17. Find the surface area of the lamp shade below if the radii of the top and bottom of the lamp shade are 2.8 cm and 3.5 cm respectively. The height of the frustum is 5 cm. (10mks)



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18. a) using a compass and ruler only, draw triangle ABC with AB = 6 cm, angle ABC = 75^0 and BC = 5 cm. (4mks)

b) Drop a perpendicular from B to AC such that it cuts AC at N . Measure BN. (3mks)

c) Calculate the area of the triangle ABC. (3mks)

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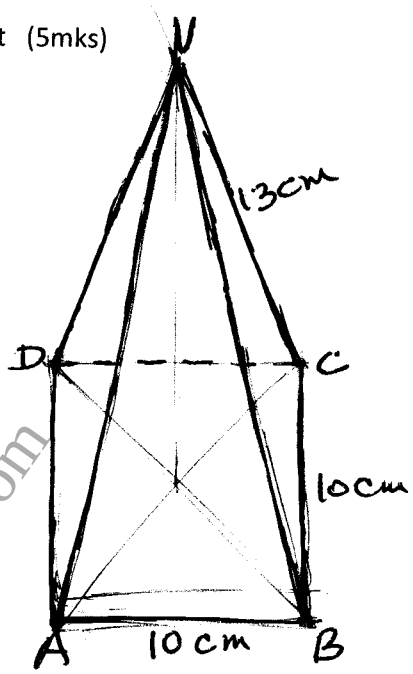
19. a) Draw the net of the square pyramid below and label it (5mks)



b) Calculate the total surface area of the net. (5mks)

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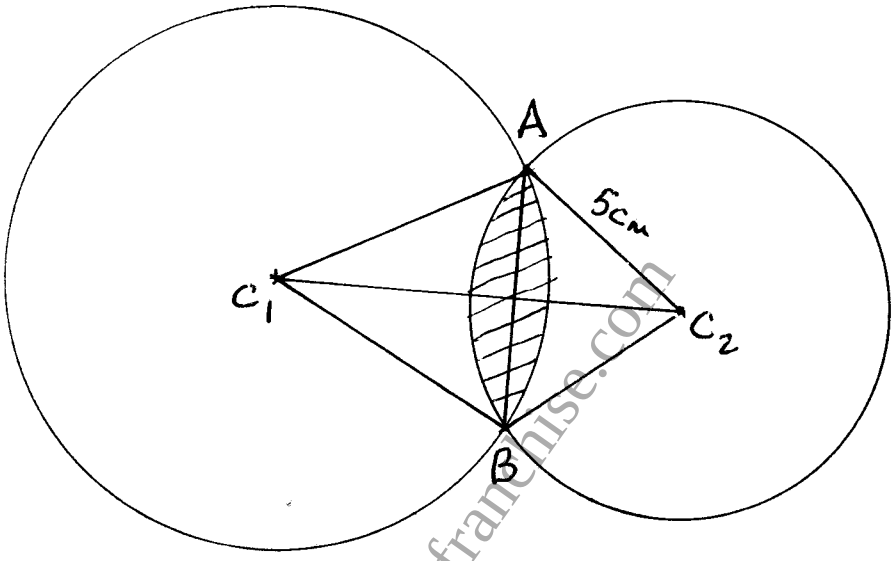
20. The figure below shows two intersecting circles with centres c_1 and c_2 . The distance between c_1 and c_2 = 10 cm. If the chord AB= 8 cm and AC$_2$=5 cm. Calculate the shades area common to the two circles. (10mks)



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21. Two ships A and B leave port P at the same time. Ship A travels on bearing 080^0 at a speed of 60 km/h while ship B travels on a bearing of 240^0 at a speed of 80 km/h.

i) Show on a scale drawing the positions of the ships after 2 hours.(6mks)

ii)The distance between ship A and ship B after 2 hours. (2mks)

iii) the bearing of ship A from ship B. (2mks)