END OF TERM 1 EXAMS

MATHEMATICS

FORM TWO

TIME: 1 ½ HOURS

NAME……ADM NO:……

SIGN…… INDEX NO:……

Attempt all the questions in the spaces provided.

1. Solve for x in the equation: (3 mks)

$$32^{(x-3)} \times 8^{(x+4)} = 64 \div 2^{x}$$

2. Simplify without using a calculator or a mathematical table

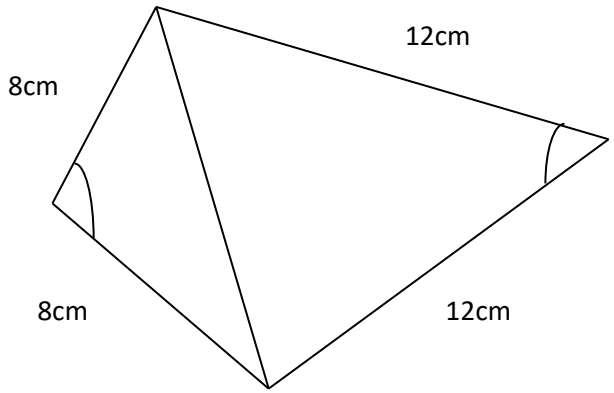
$$\frac{\sin 90^{o} \cos 45^{o}}{\sin 45^{o}}$$

(2 mks)

3. A line which joins the point A(3, k) and B(-2, 5) is parallel to another line whose equation is $5y + 2x = 10$. Find the value of K. (3 mks)

4. A group of 5 people can do a piece of work in 6 hours. Calculate the time a group of 8 people, working at half the rate of the first group could take to complete the same work. (3 mks)

5. Calculate the area of the shape below. (3 mks)



6. The length of a minute hand of a clock is 3.5cm. Find the angle it turns through if it sweeps an area of 48cm. (Take $\pi = 22/7$) (2 mks)

7. Two years ago, Jane was twice as old as John. If the sum of their ages 5 years from now will be 44 years, calculate their present ages. (3 mks)

8. Express $1.9\dot{3} + 0.2\dot{5}$ as a single fraction. (3 mks)

9. The surface area of two similar bottles are $12cm^2$ and $108cm^2$ respectively. If the larger one has a volume of $810cm^3$, find the volume of the smaller one. (3 mks)

10. Simplify the following expression

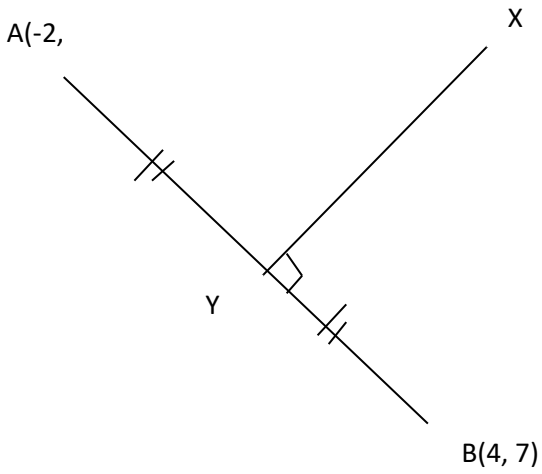
$$\frac{7x - 7xy}{7 - 7y}$$

(2 mks)

11. Use mathematical tables to evaluate: (4 mks)

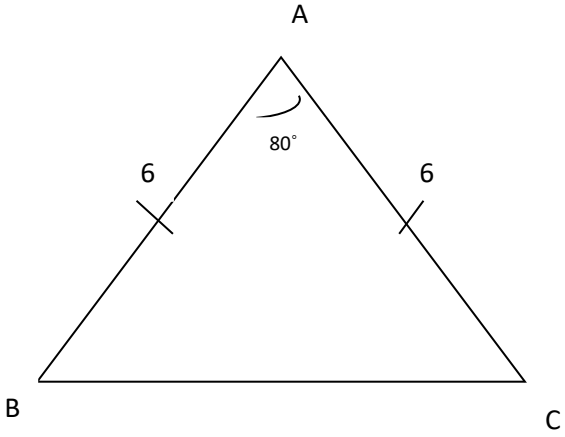
$$\sqrt{\frac{1.794 \times 0.038}{12.43}}$$

12. In the diagram below, determine the equation of the line XY in the form y = mx + c (3 mks)



13. An aircraft flying onto an airport calls out the control tower and says it is at height of 500m above the tower. If its horizontal distance from the tower is 8km, calculate the angle of elevation from the tops of the tower. (3 mks)

14. The figure below shows an isosceles triangle in which AB = AC = 6cm. Angle BAC = 80˚. Calculate the length of BC.



(3 mks)

15. Solve the equation. (1 mk)
Sin y2 = Cos 26˚

SECTION II(30 MARKS)

Choose any three questions only.

16. The vertices of a triangle PQR are P(0, 0) Q(6,0) and R(2,4)
(a) Draw triangle PQR on the grid provided. (1 mk)

(b) Triangle P'Q'R' is the image of a triangle PQR under an enlargement scale factor ½ and centre (2,2) write down the coordinates of P'Q'R' and plot on the same grid. (3 mks)

(c) Draw triangle P"Q"R" the image of triangle P'Q'R' under a positive quarter turn about point (1,1) (3 mks)

(d) Draw triangle $P^{III}Q^{III}R^{III}$ the image of P"Q"R" under a reflection in the line y = 1.

17. In a school, there are 1250 students, each student contributed sh 380 towards a welfare programme. The money contributed was used to purchase 75 bales of maize flour which was shared equally among 50 families. One bale of maize flour contains 12 packets and costs sh 1050. The remaining amount was shared equally among 125 students as bursary. Calculate:
(a) The total amount collected. (2 mks)

(b) The total number of maize flour bought (2 mks)

(c) The number of packets each family got. (2 mks)

(d) The amount of money that remained. (2 mks)

(e) The amount of bursary that each student got. (2 mks)

18. Find the area in hectares of a maize field whose measurements are shown in the field book below. The baseline PQ is 300m long. (10 mks)

	Q	
	250	70B
C100	180	
	80	150A
	P	

19. The marked price of a sewing machine is sh 30,000. A discount of 10% is given on cash payment. The sewing machine can also be bought on hire purchase. The hire purchase terms requires a deposit of sh 10500 followed by 12 equal monthly installments of sh 2150 each.

(a) Calculate:

(i) The cash price of the sewing machine. (2 mks)

(ii) The hire purchase value of the sewing machine. (3 mks)

(b) Korir bought the sewing machine by cash while Akinyi bought it on hire purchase. How much did Akinyi pay for the machine than Korir? (3 mks)

(c) Calculate the percentage increase in hire purchase price over the marked price.(2 mks)

20. (a) Complete the following tables for the equations:
(i) $y = 5x - 7$
(ii) $y = 9 - 3x$

Table 1

X	-2	-1	0	1
y		-12		7
(x,y)		(-1, -12)	(0, -7)	

Table 2

X	-2	-1	0	1
y	13			7
(x,y)	(-2, 13)			(1, 7)

(b) On the same grid, draw the graphs of: (4 mks)
(i) $y = 5x - 7$
(ii) $y = 9 - 3x$

(c) Use your graphs to solve the following simultaneous equations. (2 mks)

$5x - y = 7$

$3x + y = 9$

WE WISH YOU A HAPPY BIRTHDAY