



FOCUS A365

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ADM

NAME

CLASS FORM 3

DATE

SCHOOLST. CLARE GIRLS SECONDARY SCHOOL - GATITU

KCSE | MID-TERM EXAMS | MATHEMATICS | TERM 1 | 2018

For Examiner's Use Only

<u>CANDIDATE'S SCORE</u>			<u>MAXIMUM SCORE</u>
<u>Section A.</u>	<u>Section B.</u>	<u>Total</u>	100

Teacher's Comment

Instructions:

1. Write your **name, class and ADM number** in the spaces provided above.
2. Answer **all** the questions in section A and only 5 questions in section B.
3. All workings must be **clearly shown** on the question paper provided.
4. Confirm that 14 pages are printed and you are provided with a graph papers
5. Any acts of **cheating** will render your examinations nullified
6. For any queries, please confirm with the invigilator.

This paper takes strictly 2 1/2 hours

Section A: Answer All Questions in this Section (50 Marks)

- 1) Solve the simultaneous equations 3 mks
 $6x - 4y = -4$
 $5x + 2y = 2$

- 2) Simplify the expression. 2 mks
$$\frac{24m + 8n}{n + 3m}$$

- 3) Without using a calculator, evaluate for y in; 3 mks
$$\frac{1}{y} = \frac{1}{24.3} + \frac{1}{13.1}$$

- 4) Solve for x in the equation. 3 mks
$$4^{x+1} \times \left(\frac{1}{32}\right)^{2-x} = 16^{x-\frac{1}{2}}$$

- 5) Without using a calculator or log tables, solve.

3 mks

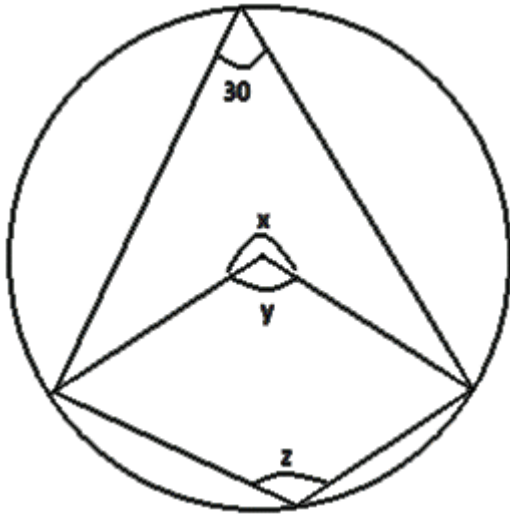
$$\frac{\log_2 \frac{1}{4} + \log_2 64}{\log_2 32 - \log_2 \frac{1}{8}}$$

- 6) The scale of a map is given as 1:50,000. Find the actual area in hectares of a region represented by a rectangle of sides 6cm by 7cm. (give your answer to the nearest whole number). 3 mks

- 7) A salesman is paid a commission of 5% on goods worth over Ksh. 500,000. He is also paid a monthly salary of Ksh. 30, 000. Calculate the total earnings in a month when his sales was Ksh. 600,000. 3 mks

- 8) The sum of three consecutive odd numbers is 69. What are the numbers? 2 mks
- 9) The sum of interior angles of a polygon is 1440° , find;
- a) The number of sides of the polygon. 2 mks
- b) The number of triangles formed when drawn from one vertex of the polygon to another vertices 2 mks
- 10) At a point 20m from the foot of a tree is 50° , what will be the angle of elevation of the top of the tree from a point 30m away from the tree? 4 mks

- 11) Find the value of x , y , and z in the figure below if O is the centre of the circle and $\angle ABC = 30^\circ$ 3 mks



- 12) Make d the subject of the formula. 3 mks

$$v = \sqrt{gd\left(1 + \frac{3h}{6}\right)}$$

- 13) A van left Nairobi for Kakamega at average speed of 80km/h. After half an hour, a car left Nairobi for Kakamega at speed of 100km/h.
a) Find the relative speed of the two vehicles 2 mks

b) How far from Nairobi did the car overtake the van?

3 mks

14) Solve the simultaneous inequality below:

$$x + 3 > 5$$

$$x - 4 < 4$$

3 mks

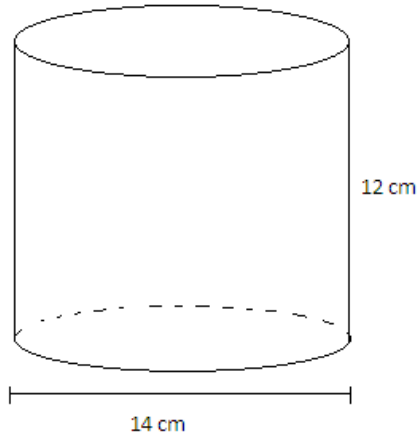
15) Factorise the expression

$$x^2 + 6x + 5$$

3 mks

- 16) Calculate the surface area of the closed solid below;

3 mks



Section B: Answer any five Questions in this Section (50 Marks)

17) In a Kiswahili test, 40 students scored the following marks;

43	39	59	56	58	63	71	40
72	66	47	38	51	50	61	64
32	78	29	32	45	80	70	57
52	46	45	39	58	72	41	55
56	53	66	63	61	46	82	64

Using a class interval of size 5 and 25-29 as the first class.

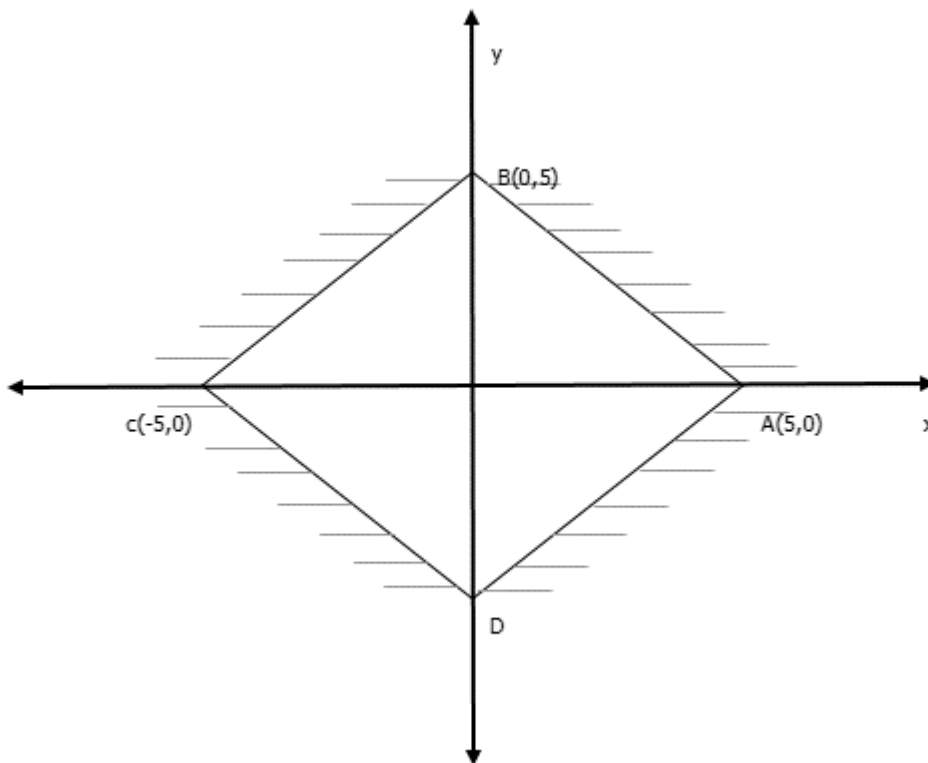
i) Make a frequency distribution table 5 mks

ii) Find the modal class 1 mk

iii) Calculate;
a) median 2 mks

b) mean 2 mks

- 18) Given the ordered pair of the points on the line AB as $(-6,-9)$, $(-4,-6)$, $(-2,-3)$, $(0,0)$:
- a) Find the equation of line AB; 2 mks
- b) Find the values of y when $x=1$ and $y=2$. 2 mks
- c) Draw line AB and $y = \frac{1}{2}x + 2$ on the Cartesian plane 4 mks
- d) Use your graph to find the values of x and y that satisfy both equations in (c) above. 2 mks
- 19) The figure below shows a square ABCD with vertices $A(5,0)$, $B(0,5)$, $C(-5,0)$ and D



- a) Determine the coordinate of point D. 2 mks

b) Write down the equations of line AB, CD, CB and AB.

4 mks

c) Write down the inequalities that determine the square.

4 mks

20) A salesperson is paid a commission of 20% on goods sold worthy over sh.100,000. She is also paid a monthly salary of sh.12,000. In a certain month she sold 360 books at sh.500 each.

a) Calculate the salesperson's earning that month.

3 mks

- b) In the following month, the salesperson's earning was sh.17,600. Calculate:
- i) The total amount of money received from sales that month. 3 mks

 - ii) The number of books sold that month. 2 mks
- c) 10 chicken can lay 10 eggs in 10 days. How many eggs will 100 chicken lay in 100 days on the same rate? 2 mks
- 21 A slaughter house bought a number of goats at sh.2,000 each and a number of bulls at sh.15,000 each. They a total of sh.190,000. If they bought twice as many goats and three bulls less, they would have saved sh.5000.
- a) Find the number of each type of animals bought. 6 mks

- b) If the slaughter house sold all the animals at a profit of 25% per goat and 30% per bull. Calculate the total actual profit in shillings 4 mks

- 22 Using a ruler and a pair of compass only, construct a triangle ABC in which AB=7.5cm, BC=6cm and AC=4.5cm 3 mks

- a) Measure: 3 mks
- i) $\angle ABC$
 - ii) $\angle ACB$
 - iii) $\angle BAC$
- b) Draw a circle enclosed within the sides of triangle ABC 3 mks
- c) What is the diameter of the circle? 1 mk

- 23 Two boats P and Q leave port A at the same time. P sails on a bearing of 060° at 750km/h while Q sails on a bearing of 210° at 900km/h .
- a) Using a suitable scale draw a diagram to show the positions of the boats after 2 hours. 4 mks

- b) Use your diagram to determine:
- i) the distance between the two boats in kilometers 2 mks
 - ii) the bearing of Q from P 2 mks
 - iii) the bearing of P from Q 2 mks

24 Given that points X (0,-2), Y (4, 2) and Z (x,6);

- a) Write down the column vector \overrightarrow{XY} . 1 mk
- b) i) Find $|\overrightarrow{XY}|$ leaving your answer in index form. 3 mks
- ii) Given that $|\overrightarrow{XZ}| = 11.3170$, find the coordinates of Z. 3 mks
- c) Find the mid-point of the line YZ. 3 mks