END-TERM ONE EXAMINATION YEAR 2020

FORM II

<u>MATHEMATICS</u>

<u>NAME</u>_____<u>ADM NO</u>_____<u>CLASS</u>_____

1) A triangle has vertices A(2,5) B(1, -2) and C(-5,1). Determine;

   i)   The equation of line BC   (1mk)

   ii)   The equation of the perpendicular line A to BC   (2mks)

2) A cube has a volume of 5832cm^3. Find the height of the cube   (3mks)

3) Use tables to evaluate   (3mks)

$$\frac{1}{\sqrt{7}} + \frac{1}{\sqrt{6.4}} - \frac{1}{\sqrt[3]{9.18}}$$

4) Solve for a

    i) $2^a = \dfrac{1}{64}$ (2mks)

    ii) $3 \times 2^{a+5} = 768$ (2mks)

5) Use logarithm, to evaluate the following correct to 4s.f   (4mks)

$$\frac{0.186 \; x \; 7.79}{34.2 \; x \; 0.042}$$

6) In a plan of a house the scale of the length is shown as 1:50, calculate

    a)   The length of a room which is 8.5cm on the plan.   (2mks)

    b)   The height of a door on the plan if the real height is 2m.   (2mks)

7) The interior angle of a regular polygon is 108° larger than the exterior angle. How many sides has the polygon?   (3mks)

8) Three sirens sound at intervals of 30 minutes, 50 minutes and 35 minutes. If they wail together at 7.18 a.m. on Monday, what time and day will they wail together.   (3mks)

9) Given that: (4mks)

$$\frac{\frac{3}{5} \quad of \quad 60 - 2\frac{2}{3} \times 1\frac{1}{2}}{5\frac{5}{8} \times 1\frac{7}{9} - \frac{5}{4} \quad of \, 4\frac{4}{5} + 2\frac{4}{5} \div \frac{7}{10}} = M^{m}$$

Find the value of m

10) In this question, use a pair of compasses and a ruler only.
   a)   Construct triangle ABC such that AB=6cm, BC=8cm and <ABC=135^0.   (2mks)
   b)   Construct the height of the triangle ABC taking BC as the base.   (1mk)

11) A Kenyan company received US dollars 100,000. The money was converted into Kenya shillings in a bank which buys and sells foreign currencies as follows:

	Buying(Ksh.)	Selling(Ksh.)
1 US dollar	77.24	77.44
1 sterling pound	121.93	122.27

   a)   Calculate the amount of money in Ksh the company received.   (2mks)

b) The company exchanged the Kenya shilling calculated in (a) above, into sterling pounds to buy a car from Britain. Calculate the cost of the car to the nearest sterling pound. (2mrks)

12) Express 0.002197 in standard form hence, find the value of $(0.002197)^{\frac{-1}{3}}$ (2maks)

13) a) On the grid provided, draw the square whose vertices are A(6, -2), B(7, -2), C(7, -1) and D(6, -1). (Grid was provided)
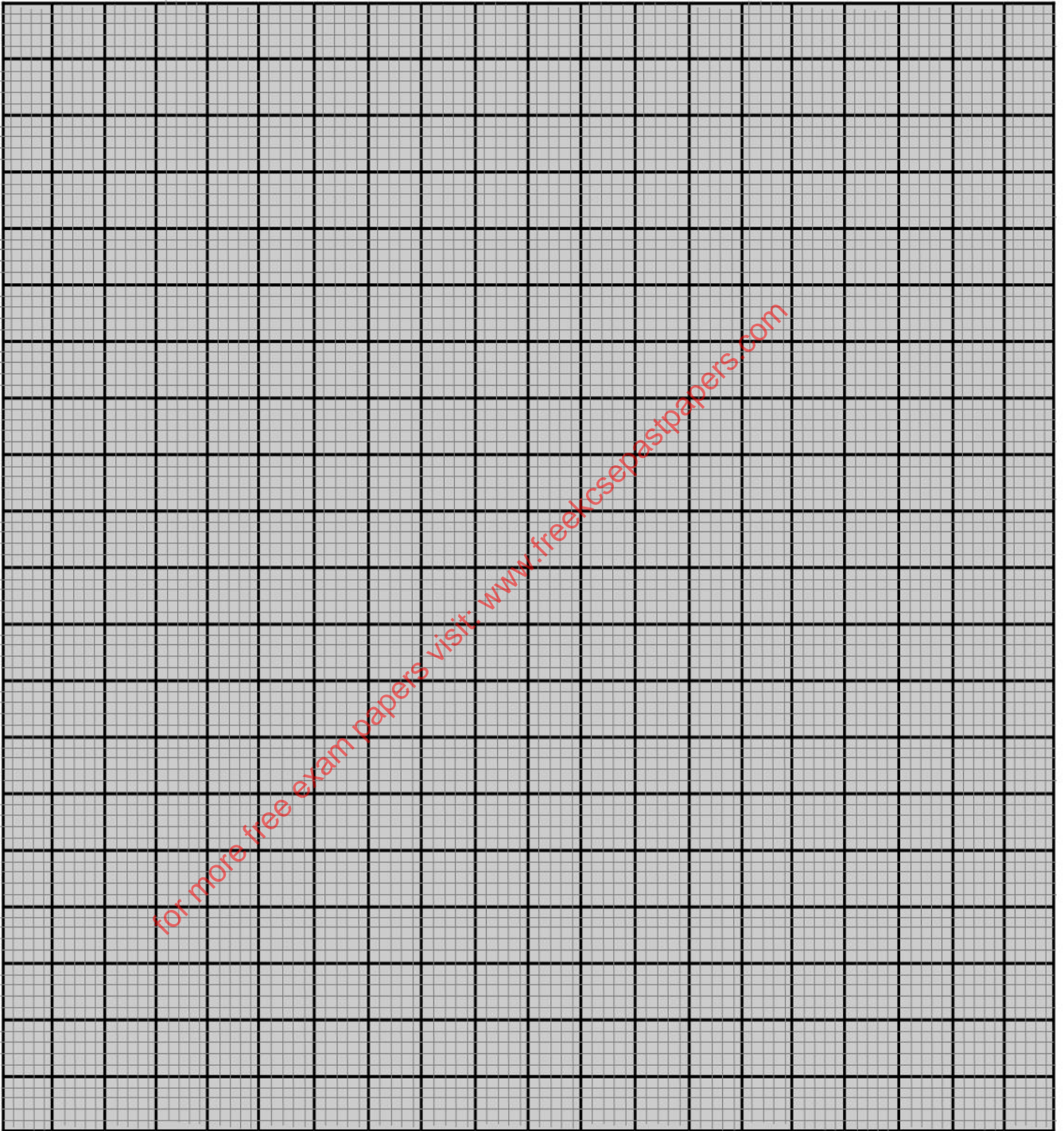
b) On the same grid draw;

i) $A^1B^1C^1D^1$, the image of ABCD, under an enlargement scale factor 3, centre (9, -4); (3mks)

ii) $A^2B^2C^2D^2$, the image of $A^1B^1C^1D^1$, under a reflection in the line X=0; (2mks)

a. $A^3B^3C^3D^3$, the image of $A^2B^2C^2D^2$ under a rotation of +90° about (0, 0) (2mks)

c) Describe a single transformation that maps $A^1B^1C^1D^1$ onto $A^3B^3C^3D^3$ (2mks)

14. Kisumu and Nanyuki are situated in such a way that Nanyuki is on a bearing of 075 degrees from Nakuru and Kisumu on a bearing of 280 degrees from Nakuru. If Kisumu is 190 KM and Nanyuki is 160 KM from Nakuru; Find   (3 marks)

(a) Compass bearing from

(i) Kisumu from Nanyuki   (1 mark)

(ii) Nanyuki from Kisumu   (1 mark)

 (b) The distance of Kisumu from Nanyuki. (2 marks)

(c) If John drove his vehicle from Nanyuki to Kisumu directly but Mary drove from Nanyuki to Kisumu via Nakuru, find who covered the shortest distance than the other. (3 marks)