

2018 BECE MATHEMATICS 2
MATHEMATICS 2

1(a) Solve the inequality:

(1b) Given $t = \begin{pmatrix} -1 \\ 3 \end{pmatrix}$ and $K = \begin{pmatrix} 2 \\ -4 \end{pmatrix}$, find $2t + k$

(1c) The sides of a triangle are in the ratio 6 : 8 : 10. If the perimeter of the triangle is 288 cm, find the:

(i) longest side

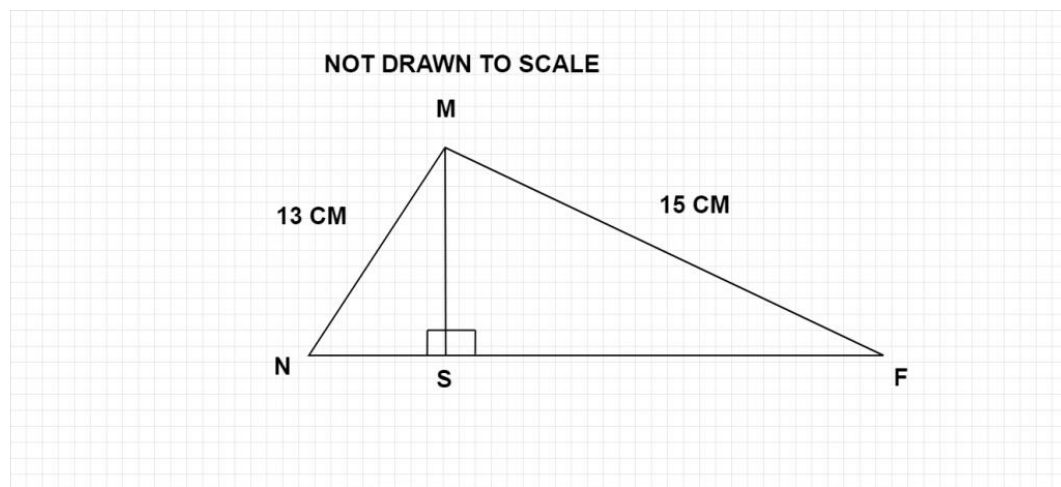
(ii) Shortest side

(iii) difference between the longest and the shortest sides.

2. (a) An English textbook costs GHc 25.00. The author of the book agreed to take 20% of the cost of each book sold. If 1,702 copies were sold, calculate the author's share.

(2b) Simplify $\left(\frac{2}{15} + \frac{2}{5}\right) + \left(\frac{9}{10} \times \frac{4}{3}\right) + \left(\frac{1}{5} \div \frac{1}{4}\right)$

(2c)



In the diagram, $|MN| = 13$ cm, $|MF| = 15$ cm, $|MS| = 12$ cm and is perpendicular to $|NF|$. Calculate length $|NF|$

3. (a) Simplify $0.0084 \times 0.81 \over 0.024 \times 0.04$, leaving the answer in standard form.

(3b) (i) Make r the subject of the relation: $y = x - r \over x + 5$

(ii) From (b)(i), find the value of r when $y = 3$ and $x = 10$

(3c) Juliet bought 1,756 kg of frozen chicken, 675 g of vegetables, and 95 g of corn oil from a shopping mall. What is the total weight of the items she bought in kilograms?

4. (a) The sum of the interior angles of a regular polygon is 900° . Find the number of sides of the polygon.

(4b) Using a ruler and a pair of compasses only, construct:

(i) Triangle XYZ such that the length $XY = 10$ cm, angle $XYZ = 30$ degrees and length $YZ = 9$ cm:

(ii) Perpendicular line from Z to meet line XY at P

(iii) measure the (1) length PZ (2) Angle XZY

(iv) Calculate, correct to the nearest whole number, the area of triangle XYZ

5. (a) A property worth GHc 10,480.00 is shared between a widow and her 10 children in the ratio 1 : 4 respectively. The children shared their portions equally. Find each child's share.

(5b) The data shows the distribution of marks in a class test.

27 55 19 65 69 46
38 42 14 57 11 13
14 67 22 10 25 17
45 39 61 52 43 24
28 63 56 49 64 32

Use the data to answer the following questions:

(i) make a Stem and Leaf plot of the data;

(ii) how many students scored more than 10 marks and less than 20 marks?

(iii) what is the probability of a student scoring less than 20 marks?

6. (a) An aeroplane left the Kotoka International Airport on Wednesday at 7:26 pm and reached its destination after nine hours thirty minutes. Find the day and the time the aeroplane reached its destination.

(6b)

(i) Using a scale of 2 cm to 2 units on both axes, draw two perpendicular axes Ox and Oy on a graph sheet for $-10 \leq x \leq 10$ and $-12 \leq y \leq 12$.

(ii) Draw on this graph, indicating the co-ordinates of all vertices, the quadrilateral ABCD with vertices A(0,10), B(-6,-2), C(-3,-11) and D(4,3).

(iii) Draw the line $X = -2$ to meet AB at P and CD at Q

(iv) Measure angles BPQ and PQD

(i) State the relationship between:

(α) angles BPQ and PQD;

(β) lines AB and CD.