

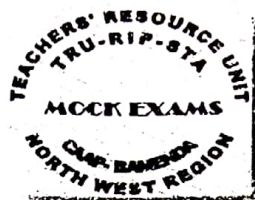


REPUBLIQUE DU CAMEROUN
Paix-Travail-Patrie

MINISTRE DES ENSEIGNEMENTS SECONDAIRES

CELLULE D'APPUI A L'ACTION PEDAGOGIQUE
ANTENNE REGIONALE DU NORD OUEST

BP 2183 MANKON BAMENDA
TEL 233 362 209
Email : trubamenda@yahoo.co.uk



REPUBLIC OF CAMEROON
Peace-Work-Fatherland

MINISTRY OF SECONDARY EDUCATION

TEACHERS' RESOURCE UNIT
REGIONAL BRANCH FOR THE NORTH WEST

P.O. BOX: 2183 MANKON BAMENDA
TEL 233 362 209
Email : trubamerida@yahoo.co.uk

MARCH 2020

The Teachers' Resource Unit and the Regional Inspectorate of Pedagogy, in collaboration with MTA	SUBJECT CODE NUMBER 0576	PAPER NUMBER 2
GENERAL CERTIFICATE OF EDUCATION REGIONAL MOCK EXAMINATION	SUBJECT TITLE MATHEMATICS	
ORDINARY LEVEL	DATE SATURDAY, 21 ST MARCH 2020 MORNING	

Time Allowed: TWO and a half hours
INSTRUCTIONS TO CANDIDATES

Mobile phones are NOT ALLOWED in the examination room.

INSTRUCTIONS TO CANDIDATES

This paper is arranged in two sections: A and B. Answer ALL questions in sections A and B

SECTION A: Answer all questions on your answer sheet. The marks allocation for each question is indicated.

SECTION B: Answer all questions on your answer sheet. All questions in this section carry equal marks.

In calculations, you are advised to show all the steps in your working, giving your answer at each stage. Non programmable electronic calculators, Mathematical formulae and Tables are allowed.

You are reminded of the necessity for good English and orderly presentation in your answer.

TURN OVER

1.(a) Evaluate $\frac{3}{4}$ of $2\frac{2}{3} - 6 + 5$ (4 marks)

(b) Evaluate $(2 \times 10^{-3}) \div (5 \times 10^{-2})$ (3 marks)

2. (a) Expand and simplify the expression $y(y + 6) - 5(y^2 - y)$ (2 marks)

(b) Find the value of the expression in (a) above when $y = -1$ (2 marks)

3. Shu, Ambe and Ngwa are 12, 8 and 10 years old respectively. They are to share the sum of 300,000FCFA, in the ratio of their ages. How much will the youngest person receive? (4 marks)

4. Three quantities p, q and r are related in a way such that p varies directly as q and inversely as r. (a) State the type of variation (1 mark)

(b) Write a Mathematical equation relating p, q and r. (2 marks)

(c) Given that $p = 4$ when $q = 2$ and $r = 1$, find p when $q = 5$ and $r = 2$ (4 marks)

5. Given the matrices $A = \begin{pmatrix} 2x & 1 \\ -1 & 2 \end{pmatrix}$, $B = \begin{pmatrix} 2 & 1 \\ 3 & 0 \end{pmatrix}$, $C = \begin{pmatrix} -1 \\ 3 \end{pmatrix}$

(a) evaluate BC (3 marks)

(b) find the value of x given that A is singular (2 marks)

6. A function $f : x \rightarrow \frac{3 - 2x^2}{2}$

(a) Calculate $f(-1)$ (2 marks)

(b) Find the value of x given that $f(x) = f(-1)$ (3 marks)

7. Given that $1t_{\text{tires}} = 14_{\text{ten}}$, find the value of t (5 marks)

8. Given two statements r and s, draw the truth table for the disjunction $(r \vee s)$ (4 marks)

9. Given the position vectors $OA = 3i - 4j$ and $OB = -i + 4j$ and that $AB = (3x - 1)i - (2x + y)j$, find the values of x and y (7 marks)

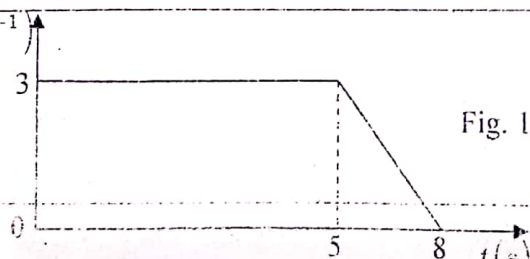
10. Two points P(2, 1) and Q(-1, k) are such that the distance between them is 5 units. Calculate the negative value of k (5 marks)

11. A student sitting 3m away from the chalk board, sees a cane at the top of the board at an angle of 60° to his horizontal view.

(a) Sketch a diagram to illustrate the situation (2marks)

(b) Calculate the distance from the student's eye to the cane (3 marks)

12. Figure 1 shows a velocity-time graph.



(a) Name the shape formed by the graph. (1 mark)

(b) Calculate the total distance covered (4 marks)

13. Figure 2 shows two parallel lines (AO) and (BQ) and a transversal (RQOP).

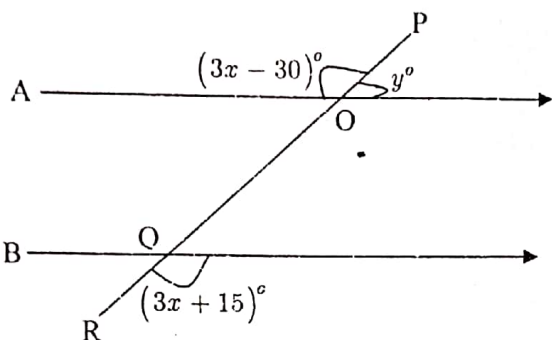


Fig. 2

(a) Calculate the value of x (2 marks)

(b) Calculate the measure of angle $P\hat{O}A$ (2 marks)

(c) Calculate the value of angle y (2 marks)

14. Two balls are selected at random, one after the other without replacement from a bag that contains 3 red balls and 5 white balls. Find the probability that the two balls selected are all red (4 marks)

15. (a) How many vertices has a network with 5 regions and 8 edges? (2 marks)

(b) In the network graph, $G(V, E)$ in figure 3 below, list the elements of V and elements of E .

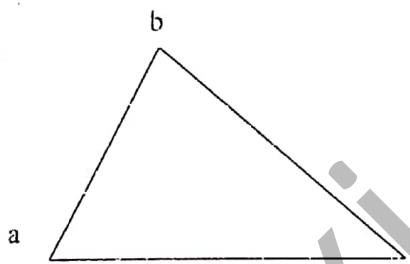


Fig 3

(5 marks)

SECTION B (Answer all the 4 questions in this section)

1. (i) A man bought a house for 4.8 million francs CFA. He paid 60% of the amount as first installment. The rest was paid by taking a loan from a bank at the rate of 7% per annum.

(a) How much did he pay as first installment? (3 marks)

(b) How much did he pay as second installment? (2 marks)

Given that he paid the loan after 2 years

(c) How much interest did he pay on the loan? (3 marks)

(d) How much was actually spent on buying the house? (2 marks)

(ii) A polynomial $f(x) = 3x^3 - 5x^2 + ax + b$ is exactly divisible by $(x + 1)$ and $(x - 2)$.

Find the values of a and b (5 marks)

2. (i) For this question, use ruler, pencil and compass only for all drawings and constructions.

(a) Draw the line (AB) of length 7cm (1 mark)

(b) Construct line (AD) such that angle $B\hat{A}D = 60^\circ$ (3 marks)

(c) Construct a perpendicular on (AD) from B to meet (AD) at C (3 marks)

(d) Measure the length of (BC) to 1 decimal place (1 mark)

(e) Draw a circle that passes through the points A, B and C (3 marks)

(ii) Two functions f and g , are defined on \mathbb{R} , the set of real numbers as follows;

$$f : x \rightarrow 1 - 3x, \quad g : x \rightarrow 2x^2 + 5$$

Find the value of $gf(1)$

(4 marks)

3. (i) 40 Children were asked to pick paper chips, and the number of paper chips by each child were recorded as follows

3	17	8	11	22	30	16	28	35	44
12	38	22	50	26	23	34	30	33	38
27	34	9	29	5	35	39	36	31	43
2	19	26	25	39	14	27	16	33	49

- (a) Draw up a grouped frequency distribution table for the data using the interval 1 – 10 , 11 – 20, 21 – 30 etc. (3marks)

Using your table

- (b) state the modal class (1 mark)

- (c) draw a cumulative frequency curve and use it to find the interquartile Range for the data (6 marks)

- (ii) A man has 24 mangoes with m of them ripe.

Find in terms of m

- (a) the number of unripe mangoes (1 mark)

- (b) the probability that a mango taken from the man is unripe (2 marks)

Given that the probability of taking an unripe mango from the man is $\frac{2}{3}$,

- (c) find the value of m (2 marks)

4. (i) Given that $f(x) = 2 + 3x - x^2$

- (a) Copy and complete the table below (3 marks)

x	-2	-1	0	1	2	3	4	5
y				4	4			

- (b) Taking 1cm to represent 1 unit on the y -axis, and 2cm to represent 1 unit on the x -axis, draw the graph of $y = f(x)$ (3 marks)

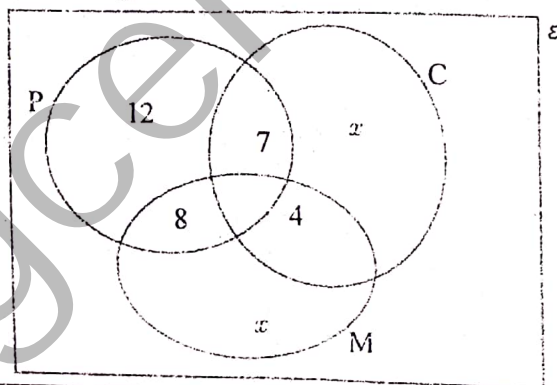
Using your graph,

- (c) state the solution of the equation $f(x) = 0$ (2 marks)

- (d) state the coordinates of the maximum point on the graph (2 marks)

- (e) find the value of x given that $y = 1.5$ (2 marks)

- (ii) 116 students in a school can study Physics(P), Mathematics(M) or Chemistry(C) as shown on the Venn diagram: below.



- (a) Find the value of x . (5marks)

- (b) How many students studied more than one subject. (5 marks)

END