DK

Total Score

Name.....

School .....

Roll No .....

Republic of Somaliland

Somaliland National Examination Board

Form Four certificate examination

MATHEMATICS
PAPER TWO

2020 - 2021

TIME 2 HOURS

Plus 10 minutes for reading through the paper

INSTRUCTIONS TO CANDIDATES

This paper consists of 10 printed pages.
Count them now. Inform the invigilator if there are any pages missing.

PART 1:	20 Multiple Choice Questions	40 Marks
PART 2:	10 Structured Questions	60 Marks

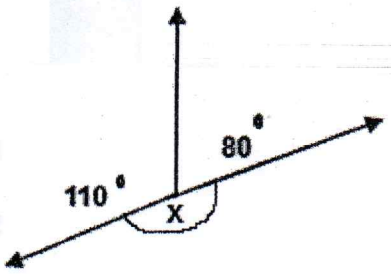
TOTAL 100 Marks

- Answer ALL questions in Part 1 and 2.
- Extra papers and Mobiles are Not Allowed

PART ONE: MULTIPLE CHOICE QUESTIONS (40 marks).

Circle the correct answer only.

1. Find the missing angle " x "



a) 200^0 b) 190^0 c) 170^0 d) 180^0

2. Dahir and his sister Asha divided $ 6. If Dahir has taken 9 more dollar than Asha. How much money did each get ?

a) 35, 26 b) 37, 24 c) 40, 21 d) 30, 31

3. Factorize this expression

$X^2 - 5x + 6$

a) $(x-2)(x+3)$ b) $(x-2)(x-3)$ c) $(x+2)(x+3)$ d) $(x-1)(x-6)$

4. If $U = \{1, 2, 3, 4, 5, 6, 7\}$
$A = \{1, 5, 6, 7\}$
$B = \{2, 3, 5, 7\}$ Find $A \cap B$:

a) $\{5, 7\}$ b) $\{1, 2, 3, 5, 6, 7\}$ c) $\{1, 2, 3, 4, 5, 6, 7\}$ d) $\emptyset$

5. The distance between the two points (1, 6) and (-3, 3) is :

a) $\sqrt{13}$ b) 9 c) 4 d) 5

6. A vertical tree is broken by the wind, the top of the tree touches the ground and makes angle 30^0. If the top of the tree touches the ground 40 m away from its foot. Find the actual height of the tree?

a) 35 m b) $30\sqrt{3}$ c) $40\sqrt{3}$ d) $20\sqrt{3}$

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7. If the Terminal side of an angle in standard position lies in the 4th quadrant, then it is :

a) 1st quadrant angle
b) 3rd quadrant angle
c) 4th quadrant angle
d) 2nd quadrant angle

8. Find the limit of the function :

$\lim_{x\to 2} \frac{x^2-4}{x-2}$

a) 4
b) 0
c) $\propto$
d) 8

9. Area = $\int_1^3 (2x + 1)dx$

a) 4 cm^2
b) 8 cm^2
c) 10 cm^2
d) -8 cm^2

10. A class of 10 students took a mathematics test and obtained the following marks:
20, 17, 9, 4, 19, 4, 6, 17, 19 and 4. Find the mode ?

a) 19
b) 4
c) 17
d) 17, 19

11. The correlation that indicated the extent to which one variable increases as the other increase is called :

a) Zero correlation
b) positive correlation
c)Negative correlation
d) unknown

12. Find the upper- quartile of the data 2, 5, 7, 9, 11, 3, 16, 18, 8, 12 and 20.

a) 11
b) 12
c) 18
d) 16

13. Given Q1 = 5 and Q_3 = 10. Find the inter quartile range :

a) 5
b) 7
c) 7.5
d) 2.5

14. The number 1 to 20 are each written on a card. The 20 cards are mixed and one is chosen. Find the probability that the number is even:

a) $\frac{1}{2}$
b) $\frac{4}{8}$
c) $\frac{3}{5}$
d) $\frac{11}{20}$

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15. A bag contains 4 red and 6 black marbles. One marble is drawn at random. The probability that the marble to be black is :

a) $\frac{3}{5}$ b) $\frac{4}{5}$ c) $\frac{2}{3}$ d) $\frac{2}{5}$

16. Find the value of n. If ${}_nP_5 = 6\ ({}_nP_4)$:

a) 6 b) 12 c) 8 d) 10

17. Find the value of x, that makes the following statement true:

$3x + 5y\,i = 15 + 20i$

a) 3 b) 5 c) 9 d) 4

18. Solve the equation

$X^2 + 4x + 29 = 0$

a) $+2 \pm 5\,i$ b) $-2 \pm 5\,i$ c) $+2 \pm 4\,i$ d) $-2 \pm 6\,i$

19. Evaluate the integral

$$\int_0^3 (3x^2 + 4x - 2)\,dx$$

a) 27 b) 39 c) 40 d 41

20. Find the slope of the tangent line $y = 4x + 2$ at $x = -2$

a) -2 b) -6 c) 4 d) 0

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PART 2: STRUCTURED QUESTIONS. ANSWER ALL QUESTIONS.. **(60 Marks)**

Q1. Sahra bought a Nokia phone at Somali-land shillings of 800,000 and she sold it at 900,000 shillings. Find:

a) the Profit (3 marks)

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b) Profit percent (pr %) (3 marks)

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Q2. Given $P = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$ *and*

$Q = \begin{pmatrix} 1 \\ 4 \end{pmatrix}$ find:

a) $\vec{P} + \vec{Q}$ (2 marks)

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b) $3\vec{Q} - \vec{P}$ (2 marks)

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c) $\left|\vec{P} + \vec{Q}\right|$ (2 marks)

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Q3. Given

$f(x) = x^2 + 2$ and $g(x) = 2x - 3$

Evaluate:

a) $f(x) + g(x)$ (2 marks)

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b) $Fog(x)$ (2 marks)

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c) $fog(2)$ (2 marks

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Q4. Given $\sin A = \frac{1}{2}$

$\cos B = \frac{4}{5}$

Find :

a) $\sin (A + B)$ (2 marks)

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b) $\sin 2A$ (2 marks)

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c) $\tan 2A$ (2 marks)

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Q5. Solve

a) $2\sin^2 x - \sqrt{3}\sin x = 0$ (3 marks)

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b) $4\cos^2 x = 3$ (3 marks)

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Q6. Find the Turning points of the Curve $y = \frac{1}{3}x^3 - \frac{5}{2}x^2 + 6x$ (6 marks)

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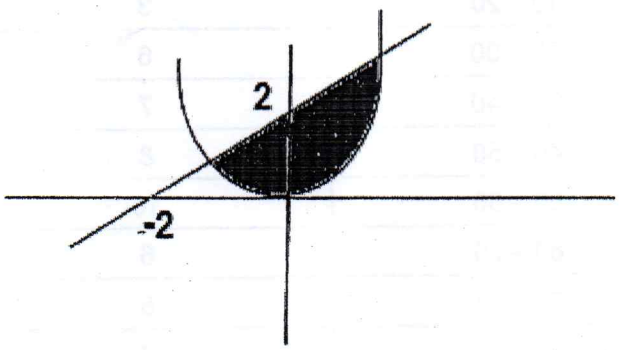
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Q7. Find the area between the curve $y = x^2$ and the line $y = x + 2$ (6 marks)



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Q8. If $z = 3 + 3i$

Find:

a) Magnitude (2 marks)

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b) Argument $\emptyset$(angle) (2 marks)

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c) Convert into polar form (2 marks)

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Q9. The data in the following table are the sugar prices by 50 shopkeepers in a town.

Mass (kg)	Freq.
10 – 20	3
20 - 30	6
30 - 40	7
40 – 50	8
50 – 60	10
60 – 70	6
70 - 80	5
80 - 90	3
90 -10	2

Find:

a) Q 1 (2 marks)

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b) Q 3 (2 marks)

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d) IQR (2 marks)

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Q10. The number from 1 to 51 is each written on cards WHICH are mixed together. One card is chosen at random from the box. Find the probability that the number on the card chosen is:

a) Even (2 marks)

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b) Odd (2 marks)

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c) Prime (2 marks)

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- End -

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