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GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

PROVINCIAL EXAMINATION

JUNE 2023

GRADE 10

MATHEMATICS

PAPER 2

TIME: 1 hour

MARKS: 50

5 pages

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INSTRUCTIONS

Read the following instructions carefully before answering the questions.

1. This question paper consists of FOUR questions.
2. Answer ALL the questions.
3. Clearly show ALL calculations, diagrams, graphs etc., which were used in determining the answers.
4. Answers only will NOT necessarily be awarded full marks.
5. Use an approved scientific calculator (non-programmable and non-graphical), unless otherwise stated.
6. Where necessary, answers should be rounded-off to TWO decimal places, unless stated otherwise.
7. Diagrams are NOT necessarily drawn to scale.
8. Number the questions correctly according to the numbering system used in this question paper.
9. Write neatly and legibly.

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QUESTION 1

1.1 If $A = 38{,}6°$ and $B = 141{,}4°$, determine the following:

cos 2A – sin($\frac{1}{2}B$) (3)

1.2 Calculate θ where $0° \leq \theta \leq 90°$. Round-off to ONE decimal place:

1.2.1 $\sin 2\theta = 0{,}4$ (2)

1.2.2 $3\sin(\frac{\theta}{2} - 20°) = 0{,}85$ (4)

1.3 Calculate the following without the use of a calculator:

1.3.1 $\sin^2 45° - \cos 60°$ (3)

1.3.2 $(sin30°)^{tan45°}$ (3)
[15]

QUESTION 2

2.1 Draw neat sketch graphs of $f(x) = -\sin x$ and $g(x) = \frac{1}{2}\cos x$; where $x \in [0° ; 360°]$. (6)

2.2 Determine the amplitude of $f(x)$. (2)

2.3 What is the period of $g(x)$? (1)

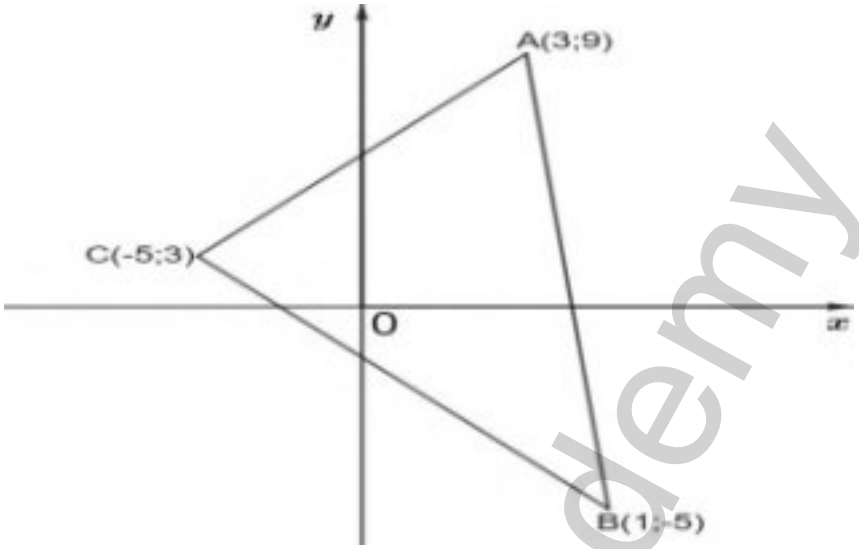
2.4 For which value(s) of x is $-\sin x - \cos x = 1$? (1)
[10]

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QUESTION 3

Study the diagram below and answer the questions that follow.



3.1 Calculate the coordinates of the midpoint of the line segment AB. (3)

3.2 Calculate the gradient of the line:

3.2.1 AC (2)

3.2.2 CB (2)

3.3 Show that AC is perpendicular to CB. (1)

3.4 Determine the length of the line segment:

3.4.1 AC (2)

3.4.2 CB (2)

3.5 Determine the area of ΔABC. (2)

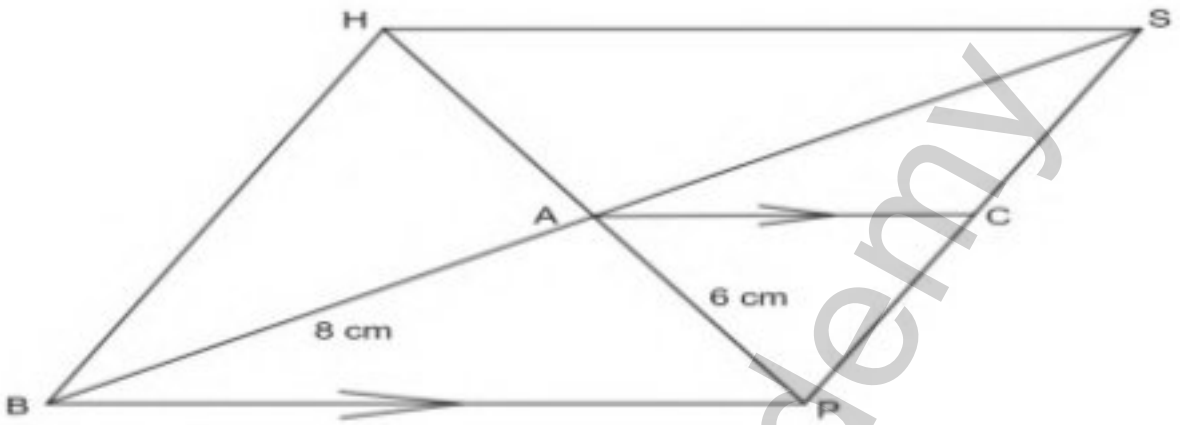
[14]

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QUESTION 4

BHSP is a rhombus whose diagonals intersect at point A. BA = 8 cm and AP = 6 cm. The line AC is drawn parallel to BP as shown in the diagram below.



4.1 Write down the size of the angle $B\hat{A}P$. (2)

4.2 Calculate the size the length of BP. (3)

4.3 Write down the length of AC (2)

4.4 Determine the area of quadrilateral BHSP. (4)
[11]

TOTAL: 50

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END