



GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

**GAUTENG DEPARTMENT OF EDUCATION
PROVINCIAL EXAMINATION
JUNE 2018
GRADE 10**

**MATHEMATICS
PAPER 2**

TIME: 1 hour

MARKS: 50

5 pages and 1 answer sheet

**GAUTENG DEPARTMENT OF EDUCATION
PROVINCIAL EXAMINATION**

**MATHEMATICS
(Paper 2)**

TIME: 1 hour

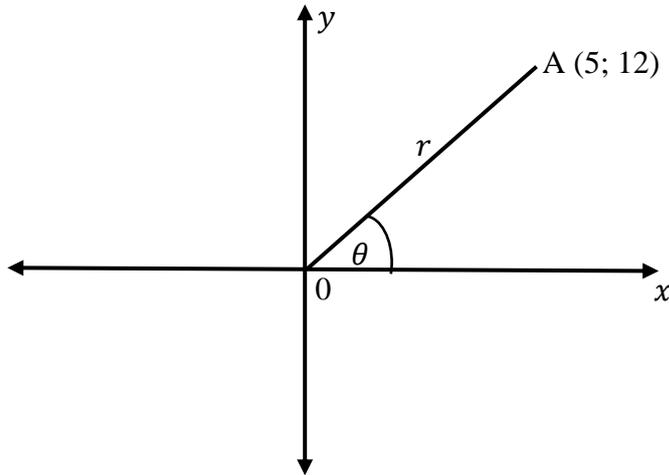
MARKS: 50

INSTRUCTIONS

- 1 Answer ALL the questions.
- 2 Clearly show ALL calculations, diagrams, graphs, etc. that you have used in determining your answers.
- 3 Answers only will not necessarily be awarded full marks.
- 4 An approved scientific calculator (non-programmable and non-graphical) may be used, unless stated otherwise.
- 5 If necessary, answers should be rounded-off to TWO decimal places, unless stated otherwise.
- 6 Diagrams are NOT necessarily drawn to scale.
- 7 Number your answers according to the numbering system use in this question paper.
- 8 It is in your interest to write legibly and to present your work neatly.

QUESTION 1

1.1 In the diagram below, A(5;12). Use the diagram to answer the following questions.



- 1.1.1 Determine the value of r . (2)
- 1.1.2 Calculate the value of $\sin \theta$ and $\cot \theta$. (2)
- 1.1.3 Prove that $\sin \theta \cdot \cot \theta \cdot \sec \theta = 1$ (2)
[6]

QUESTION 2

2.1 Determine the value of the following expression by using a calculator:

$$\frac{4 \sin 120^\circ}{\tan 200^\circ - \cos 70^\circ} \quad (2)$$

2.2 Determine the value of θ in each of the following equations, correct to ONE decimal place, if $\theta < 90^\circ$.

2.2.1 $3 \cos \theta = 2,1$ (2)

2.2.2 $\sin(\theta + 25^\circ) = 0,845$ (2)
[6]

QUESTION 3

3.1 Without the use of a calculator (show all steps), determine the value of:

$$\cos 0^\circ + \sin^2 60^\circ + \sqrt{2} \sin 45^\circ \quad (4)$$

3.2 Find the value of x , without the use of a calculator.

$$x \cdot \tan 60^\circ = \frac{\cos 50^\circ \cdot \cos 30^\circ \cdot \sec 50^\circ}{\tan 45^\circ} \quad (5)$$

3.3 Given: $f(x) = 2 \tan x$
 $g(x) = \cos x + 1$

3.3.1 Sketch the graphs of f and g on the same set of axes on the ANSWER SHEET on page 6 for $x \in [180^\circ; 180^\circ]$. (6)

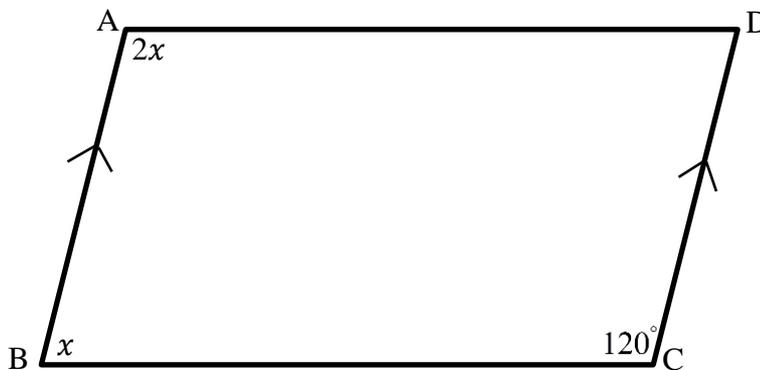
3.3.2 Write down the amplitude of g . (1)

3.3.3 What is the period of f ? (1)

3.3.4 For which values of x is $g(x) \geq 0$? (2)
[19]

QUESTION 4

In the diagram below quadrilateral ABCD, $AB \parallel CD$; $\hat{A} = 2x$; $\hat{B} = x$ and $\hat{C} = 120^\circ$.

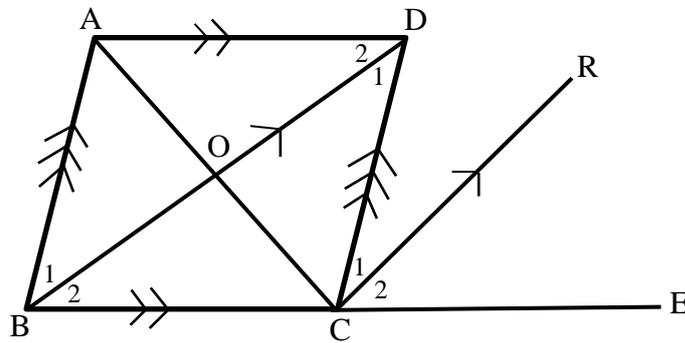


4.1 Prove that $AD \parallel BC$. (4)

4.2 What type of quadrilateral is ABCD? Give a reason for your answer. (2)
[6]

QUESTION 5

In the diagram below is $ABCD$, a parallelogram. CR bisects \widehat{DCE} and $CR \parallel BD$.



Prove that:

- 5.1 $BC = CD$ (5)
- 5.2 $ABCD$ is a rhombus. (3)
- 5.3 If it is given that $BD = 24 \text{ cm}$ and $AB = 13 \text{ cm}$, then $AC = 10 \text{ cm}$. (5)

[13]

TOTAL: 50

ANSWER SHEET

HAND THIS ANSWER SHEET IN TOGETHER WITH YOUR ANSWER BOOK.

NAME: _____

GRADE: 10 _____

QUESTION 3

3.3.1

