GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

JUNE 2017

GRADE 10

MATHEMATICS
PAPER 2

TIME: 1 hour

MARKS: 50

5 pages + 1 diagram sheet + 1 answer sheet

GAUTENG DEPARTMENT OF EDUCATION

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MATHEMATICS
(Paper 2)

TIME: 1 hour

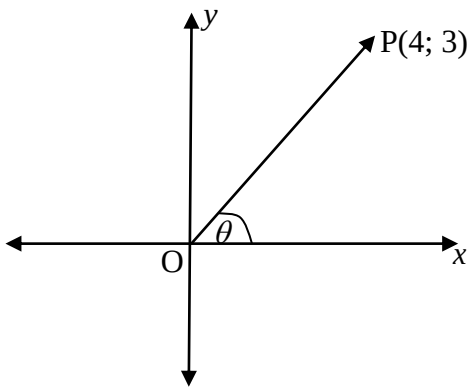
MARKS: 50

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 the answers correctly according to the numbering system used in this question paper.
8. An ANSWER SHEET is attached to the end of this question paper. Fill in your name and class in the space provided. Hand this ANSWER SHEET in with your ANSWER BOOK.
9. It is in your interest to write legibly and to present your work neatly.
10. A diagram sheet is included on page 6 to assist you

QUESTION 1

In the diagram below point, $P(4;3)$ is given and $0^o \leq \theta \leq 90^o$. Answer the following questions, without the use of a calculator.



1.1 Calculate the length of OP. (3)

1.2 Calculate the value of

1.2.1 $\sin\theta$. (1)

1.2.2 $\cos\theta$. (1)

1.2.3 $\sin^2\theta + \cos^2\theta$. (2)

[7]

QUESTION 2

2.1 Use a calculator to find the values of the following, correct to THREE decimal places.

2.1.1 $3\sin 138{,}7°$ (1)

2.1.2 $\sec 50°$ (1)

2.1.3 $\dfrac{4\tan^2 288{,}2°.\cos 164{,}6°}{\sin 199{,}4°}$ (2)

2.2 Determine, without the use of a calculator, the value of.

2.2.1 $\cos 30° + \tan 60°$. (3)

2.2.2 $\dfrac{\sin 45°}{\cos 45°} - 5\,\text{cosec}\,90° + 3\tan^2 30°$. (5)

[12]

QUESTION 3

Determine the value of θ by using a calculator if $0^{\circ} \leq \theta \leq 90^{\circ}$.

3.1 $\tan\theta = 4{,}96$ (1)

3.2 $2\sin(2\theta - 10^{\circ}) = 1$ (3)

[4]

QUESTION 4

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

4.1 Draw both sketch graphs on the same set of axes on the ANSWER SHEET provided on the last page, for $x \in [0^{\circ}; 360^{\circ}]$. (6)

4.2 Use the graphs to answer the following questions.

4.2.1 Write down the amplitude of g. (1)

4.2.2 Determine the period of f. (1)

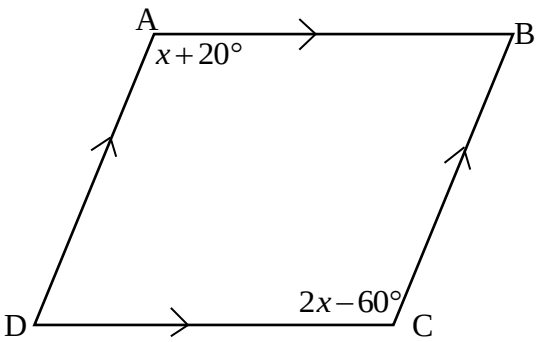
4.2.3 Determine the range of g. (2)

[10]

QUESTION 5

5.1 Name TWO properties of a rhombus. (2)

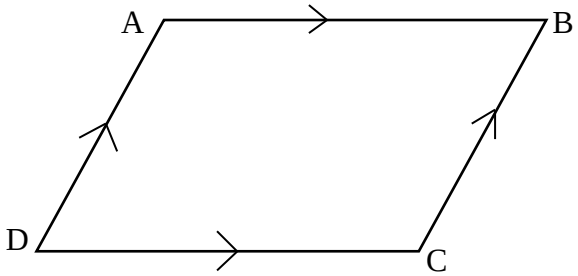
5.2 The diagram below shows is parallelogram ABCD. $\hat{A} = x + 20^{\circ}$ and $\hat{C} = 2x - 60^{\circ}$.
Determine the value of $\hat{C}$. (2)



[4]

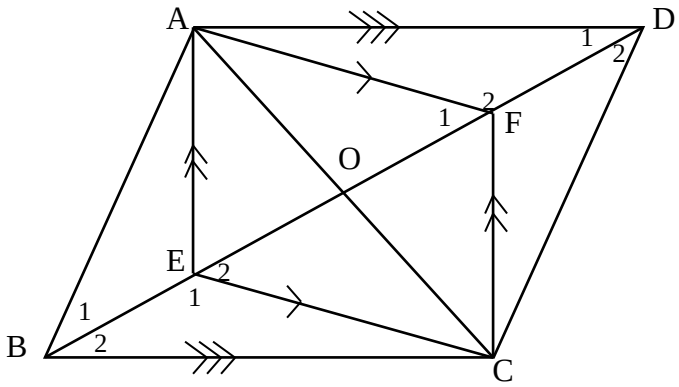
QUESTION 6

6.1 Prove that the opposite sides in parallelogram ABCD are equal.



(5)

6.2 In the figure below, AECF is a parallelogram and AD//BC.



Prove that:

6.2.1 $\hat{E}_1 = \hat{F}_2$. (3)

6.2.2 ABCD is a parallelogram. (5)

[13]

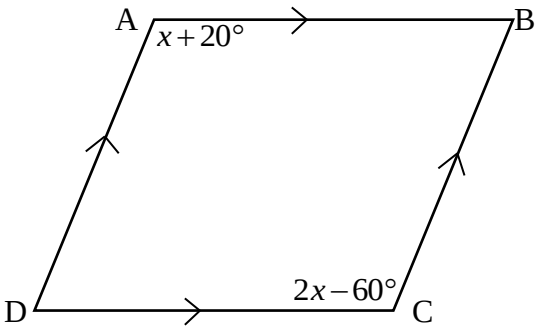
TOTAL: 50

END

DIAGRAM SHEET

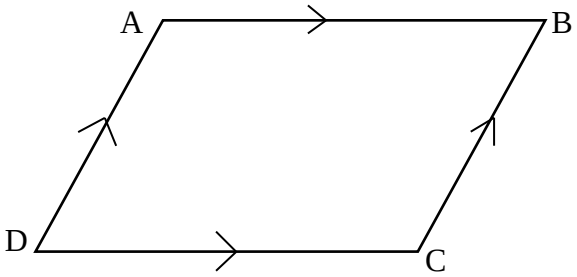
QUESTION 5

5.2

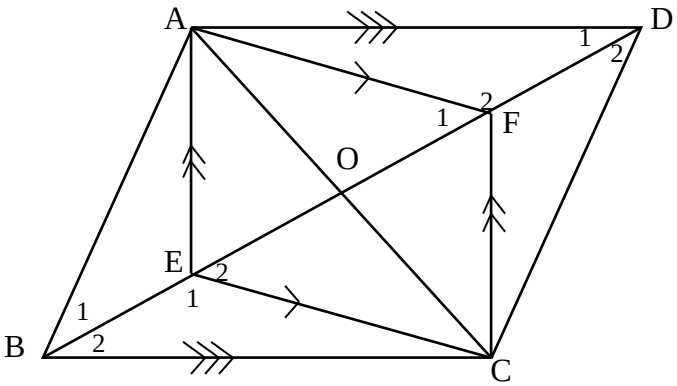


QUESTION 6

6.1



6.2



ANSWER SHEET

HAND THIS ANSWER SHEET IN TOGETHER WITH YOUR ANSWER BOOK.

NAME: _____

GRADE: 10 _____

QUESTION 4

4.1

