
# GRADE 10

# TERM 2

# MATHEMATICS

# JUNE EXAMINATION

# PAPER 2

Time allocation: 60 minutes

Total Marks: 50

Date: 31 May 2019

**INSTRUCTIONS:**

1 This paper consists of **FIVE** questions.
2 Answer **ALL** the questions.
3 A non-programmable and non-graphical calculator may be used, unless stated otherwise.
4 **ALL** calculations and steps must be shown clearly.
5 Full marks will not necessarily be awarded for answers only.
6 **ALL** final answers must be rounded off to TWO decimal places, unless stated otherwise.
7 Write neatly and legibly.

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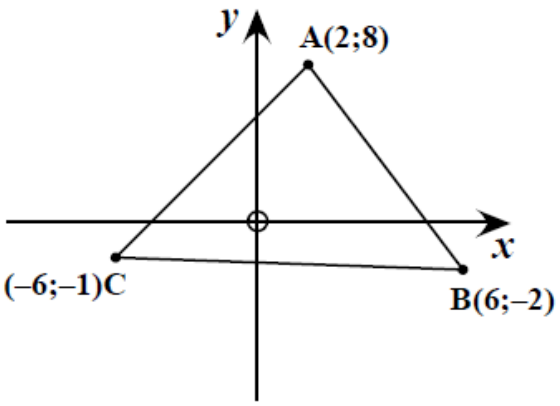
## Question 1 [9 marks]

Given: Δ ABC with vertices A (2; 8 ), B ( 6 ; - 2 ) and C ( -6 ; -1 )




Determine the following, leave answer in surd form where necessary:

1.1 The gradient between A and B. (2)
1.2 The midpoint M of AB. (2)
1.3 The lengths of AC and BC. (4)
1.4 What type of triangle is ΔABC? (1)

**Question 2 [14 marks]**

2.1 The line segment AB with $A(x; 3)$ and $B(-4; y)$ has $M(2; -1)$ as its midpoint. Calculate $x$ *and* $y$. (4)

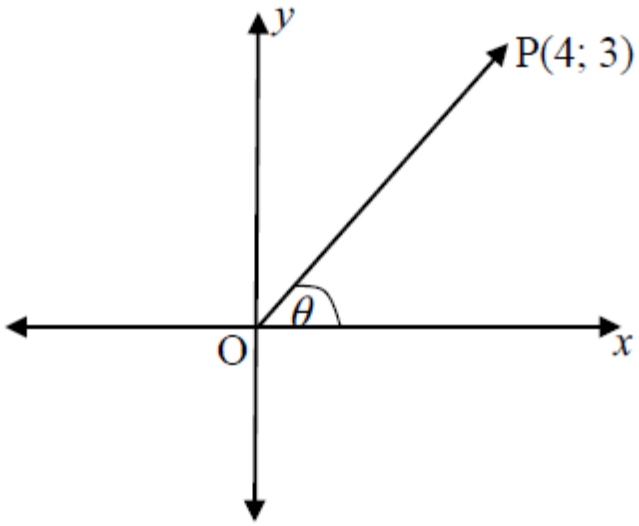
2.2 If the length of the line segment joining point P$(x;-1)$ and Q$(3;2)$ is equal to $\sqrt{10}$ units, determine the possible values of $x$. (5)

2.3 Δ ABC has coordinates A ( -2; -2), B ( 1 ; 3 ) and C ( 6 ; 0 ). (5)

Show that ΔABC is a right-angled triangle.

**Question 3 [7 marks]**

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




3.1 Calculate the length of OP. (3)

3.2 Calculate the value of:

3.2.1 $\sin\theta$ (1)

3.2.2 $\cos\theta$ (1)

3.2.3 $sin^2\theta + cos^2\theta$ (2)

## Question 4 [16 marks]

4.1 Use a calculator to find the values of the following, correct to three decimal places.

4.1.1 $2\sin 137{,}9°$ (1)

4.1.2 $cosec\ 34°$ (1)

4.1.3 $\frac{4tan^2 268{,}2°.\cos 165{,}4°}{\sin 199°}$ (2)

4.2 Determine, without the use of a calculator, the value of the following:

4.2.1 $\cos 30° + \sin 60°$ (3)

4.2.2 $\frac{\sin 45°}{\cos 45°} - 5\sin 90° + 3\ tan^2 30°$ (5)

4.3 Determine the value of $\theta$ by using a calculator if $0° \leq \theta \leq 90°$.

4.3.1 $\tan\theta = 5{,}96$ (1)

4.3.2 $2\cos(2\theta + 10°) = 1$ (3)

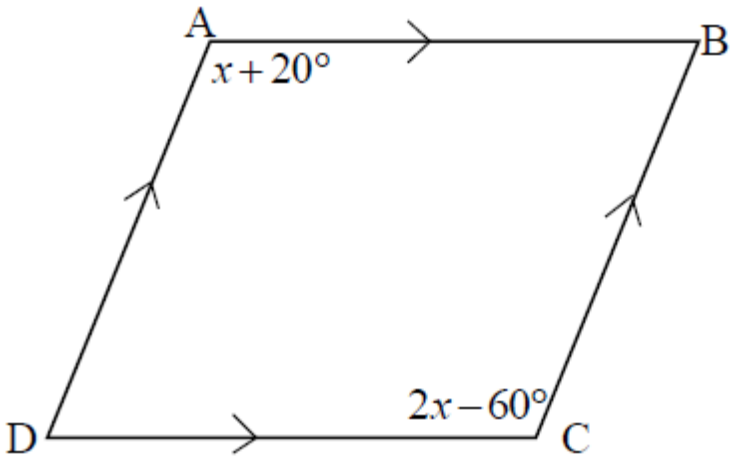
## Question 5 [4 marks]

5.1 Name TWO properties of a rhombus

5.2 The diagram below shows parallelogram ABCD.

$\hat{A} = x + 20°$ and $\hat{C} = 2x - 60°$.

Determine the value of $\hat{C}$.




**TOTAL: 50**