

PROVINCIAL EXAMINATION

JUNE 2022

GRADE 10

MATHEMATICS

(PAPER 2)

TIME: 1 hour

MARKS: 50

6 pages

INSTRUCTIONS AND INFORMATION

- 1. This question paper consists of 8 questions.
- 2. Show ALL calculations, diagrams, graphs etc. that you have used to determine the answers, clearly.
- 3. Answers only will NOT necessarily be awarded full marks.
- 4. You may use an approved scientific calculator (non-programmable and non-graphical), unless stated otherwise.
- 5. If necessary, round-off answers to TWO decimal places, unless stated otherwise.
- 6. Diagrams are NOT necessarily drawn to scale.
- 7. Write neatly and legibly.

MATHEMATICS		3
(Paper 2)	GRADE 10	

QUESTION 1

Study the diagram below and answer the questions that follow, without the use of a calculator.



Determine the value of θ if $\theta \in [0^\circ; 90^\circ]$, without the use of a calculator.

tan 30°°. cosec 60°	
<i>cos</i> 45°. <i>sin</i> 45°	(4)
	[4]

MATHEMATICS		4
(Paper 2)	GRADE 10	-

QUESTION 4

The diagram below represents the graphs of $f(x) = a \sin x$ and $g(x) = b \cos x$ for $x \in [0^{\circ}; 360^{\circ}]$.



5

QUESTION 5

Use the list of quadrilaterals given below to answer the questions that follow.

- Parallelogram
- Rectangle
- Rhombus
- Square
- Kite
- Trapezium

Write down the name of the quadrilateral(s) that have the following properties:

QUES	TION 6	[4]
5.3	Diagonals bisect the area of the quadrilateral	(2)
5.2	Diagonals have the same length	(1)
5.1	Diagonals bisect the interior angles	(1)

MATHEMATICS

(Paper 2)

PQRS is a parallelogram with M on PS such that PM = PQ and SM = SR.

 $\hat{QMR} = 90^{\circ} \text{ and } \hat{Q}_2 = x.$



6.1	Determine, with reasons, two other angles which are equal to x .	(4)
6.2	Determine the size of \hat{M}_3 in terms of <i>x</i> .	(2)
6.3	Calculate the numerical value of x .	(2) [8]

QUESTION 7

ABCD is a parallelogram with AD || BC and BA || CD.



Using the diagram above, prove the theorem that states that the opposite sides of a parallelogram are equal.

[5]

QUESTION 8

ABCD is a parallelogram. BD and AC intersect at O. AF = OD, CO = FB. DA and BF produced meet at E.



8.1 Prove that BOAF is a parallelogram. (4)

8.2 Prove that AD = EA. (4)

[8]

TOTAL: 50