

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

**MATHEMATICS
PAPER 2**

MARKING GUIDELINES

6 pages

GAUTENG DEPARTMENT OF EDUCATION
PROVINCIAL EXAMINATIONMATHEMATICS
(Paper 2)

MARKING GUIDELINES

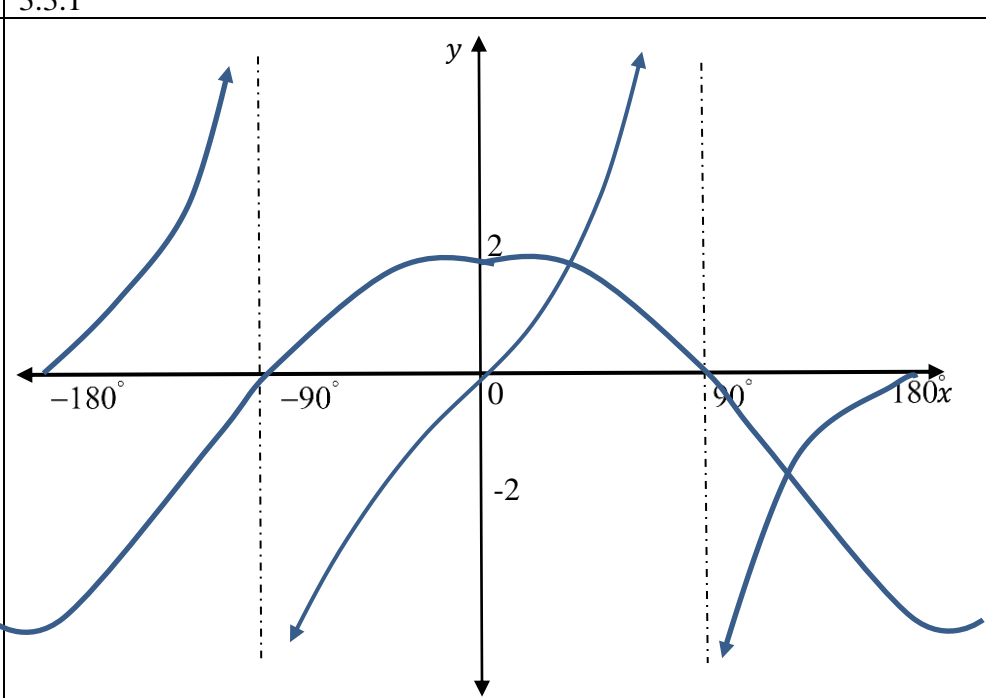
QUESTION 1			
1.1	1.1.1	$r^2 = x^2 + y^2$ $r^2 = 5^2 + 12^2$ $r^2 = 25 + 144$ $\sqrt{r^2} = \sqrt{169}$ $r = 13$	✓Pythagoras ✓ $r = 13$ (2)
	1.1.2	$\sin\theta = \frac{12}{13}$ $\cot\theta = \frac{5}{12}$	✓ $\frac{12}{13}$ ✓ $\frac{5}{12}$ (2)
	1.1.3	LHS: $\sin\theta \cdot \cot\theta \cdot \sec\theta$ RHS: 1 $= \frac{12}{13} \times \frac{5}{12} \times \frac{13}{5}$ $= 1$	✓ substitute correct values ✓ 1 (2)
			[6]

QUESTION 2

2.1		$\frac{4 \sin 120^\circ}{\tan 200^\circ - \cos 70^\circ}$ $= 157,82$	✓✓ answer (2)
2.2	2.2.1	$3 \cos \theta = 2,1$ $\cos \theta = \frac{2,1}{3}$ $\cos \theta = 0,7$ $\theta = \cos^{-1} 0,7$ $\theta = 45,6^\circ$	✓ simplify ✓ $45,6^\circ$ (2)
	2.2.2	$\sin(\theta + 25^\circ) = 0,845$ $\theta + 25^\circ = \sin^{-1} 0,845$ $\theta = 57,67^\circ - 25^\circ$ $\theta = 32,7^\circ$	✓ $\theta = 57,67^\circ$ ✓ $\theta = 32,7^\circ$ (2)
			[6]

QUESTION 3

3.1	$\cos 0^\circ + \sin 60^\circ + \sqrt{2} \sin 45^\circ$ $= 1 + \left(\frac{\sqrt{3}}{2}\right) + \sqrt{2} \left(\frac{1}{\sqrt{2}}\right)$ $= 1 + \frac{3}{4} + 1$ $= 2\frac{3}{4}$	$\checkmark 1$ $\checkmark \frac{\sqrt{3}}{2}$ $\checkmark \frac{1}{\sqrt{2}}$ $\checkmark 2\frac{3}{4}$ (4)
3.2	$x \cdot \tan 60^\circ = \frac{\cos 50^\circ \cdot \cos 30^\circ \cdot \sec 50^\circ}{\tan 45^\circ}$ $x \cdot \sqrt{3} = \frac{(\cos 50^\circ \cdot \sec 50^\circ) \cdot \frac{\sqrt{3}}{2}}{1}$ $x = 1 \cdot \frac{\sqrt{3}}{2} \div \sqrt{3}$ $x = \frac{1}{2}$	$\checkmark \sqrt{3}$ $\checkmark \frac{\sqrt{3}}{2}$ $\checkmark \cos 50^\circ \cdot \sec 50^\circ = 1$ $\checkmark 1$ $\checkmark \frac{1}{2}$ (5)

3.3	<p>3.3.1</p> 	$f(x) = 2 \tan x$ \checkmark form \checkmark asymptote $\checkmark (45^\circ; 2)$ $g(x) = \cos x + 1$ \checkmark form \checkmark x- intercept \checkmark y- intercept (6)
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	3.3.2	1	✓1 (1)
	3.3.3	180°	✓1 (1)
	3.3.4	$x \in [-90^\circ; 90^\circ]$	✓ critical values ✓ inequality (2)
			[19]
QUESTION 4			
4.1	$x = 60^\circ$ $\therefore A \square = 2x = 2(60^\circ)$ $A \square = 120^\circ$ $\therefore A \square + B \square = 180^\circ$ $\therefore AD // BC$	AB//DC co-interior angles Co-interior angles supplementary	✓B ✓R $\checkmark A \square + B \square = 180^\circ$ ✓R (4)
4.2	ABCD is a parallelogram.	Opposite sides parallel Opposite angles equal	✓parallelogram ✓ correct reason (2)
			[6]

QUESTION 5

5.1	$\hat{C}_1 = \hat{D}_1$ $\hat{C}_1 = \hat{C}_2$ $\hat{C}_2 = \hat{B}_2$ $\hat{D}_1 = \hat{B}_2$ $BC = CD$	Alternate angles $BD \parallel CR$ Given CR bisect $D\hat{C}E$ Corresponding angles $BD \parallel CR$ Sides opposite equal angles	$\checkmark R$ $\checkmark \hat{C}_1 = \hat{C}_2$ $\checkmark B/R$ $\checkmark B$ $\checkmark R$	(5)
5.2	$CD = BC$ $CD = AB$ $AD = BC$ $ABCD$ is a rhombus	Proven Opposite sides parallelogram Opposite sides parallelogram All 4 sides equal	$\checkmark B/R$ $\checkmark B/R$ $\checkmark R$	(3)
5.3	$BO = OD = 12 \text{ cm}$ $\hat{O} = 90^\circ$ $AB^2 = AO^2 + BO^2$ $(13)^2 = AO^2 + (12)^2$ $AO^2 = 169 - 144$ $AO^2 = 25$ $AO = 5$ $AO = OC$ $AC = 10 \text{ cm}$	Diagonals bisect each other Diagonals bisect at 90° Pythagoras Diagonals bisect each other	$\checkmark B/R$ $\checkmark B/R$ \checkmark correct substitute $\checkmark AO = 5$ $\checkmark AO = OC$ $\checkmark AC = 10 \text{ cm}$	(5)
				[13]
			TOTAL:	50