GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

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GRADE 10

MATHEMATICS
PAPER 2

MARKING GUIDELINES

6 pages

GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

MATHEMATICS
(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: $\sin\theta . \cot\theta . \sec\theta$ 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	$3cos\theta = 2,1$ $cos\theta = \frac{2,1}{3}$ $cos\theta = 0,7$ $\theta = cos^{-1}0,7$ $\theta = 45,6°$	✓ simplify ✓$45,6°$ (2)
	2.2.2	$sin(\theta + 25°) = 0,845$ $\theta + 25° = Sin^{-1}0,845$ $\theta = 57.67° - 25°$ $\theta = 32,7°$	✓ $\theta = 57.67°$ ✓$\theta = 32,7°$ (2)
			[6]

QUESTION 3

3.1

$cos0° + sin60° + \sqrt{2}sin45°$

$= 1 + \left(\frac{\sqrt{3}}{2}\right)^2 + \sqrt{2}\left(\frac{1}{\sqrt{2}}\right)$

$= 1 + \frac{3}{4} + 1$

$= 2\frac{3}{4}$

✓1

✓$\frac{\sqrt{3}}{2}$

✓$\frac{1}{\sqrt{2}}$

✓$2\frac{3}{4}$

(4)

3.2

$x \,.\, \tan 60^\circ = \frac{\cos 50^\circ \,.\, \cos 30^\circ \,.\, \sec 50^\circ}{\tan 45^\circ}$

$x \,.\, \sqrt{3} = \frac{(\cos 50^\circ \,.\, \sec 50^\circ).\frac{\sqrt{3}}{2}}{1}$

$x = 1 \,.\, \frac{\sqrt{3}}{2} \div \sqrt{3}$

$x = \frac{1}{2}$

✓$\sqrt{3}$

✓$\frac{\sqrt{3}}{2}$

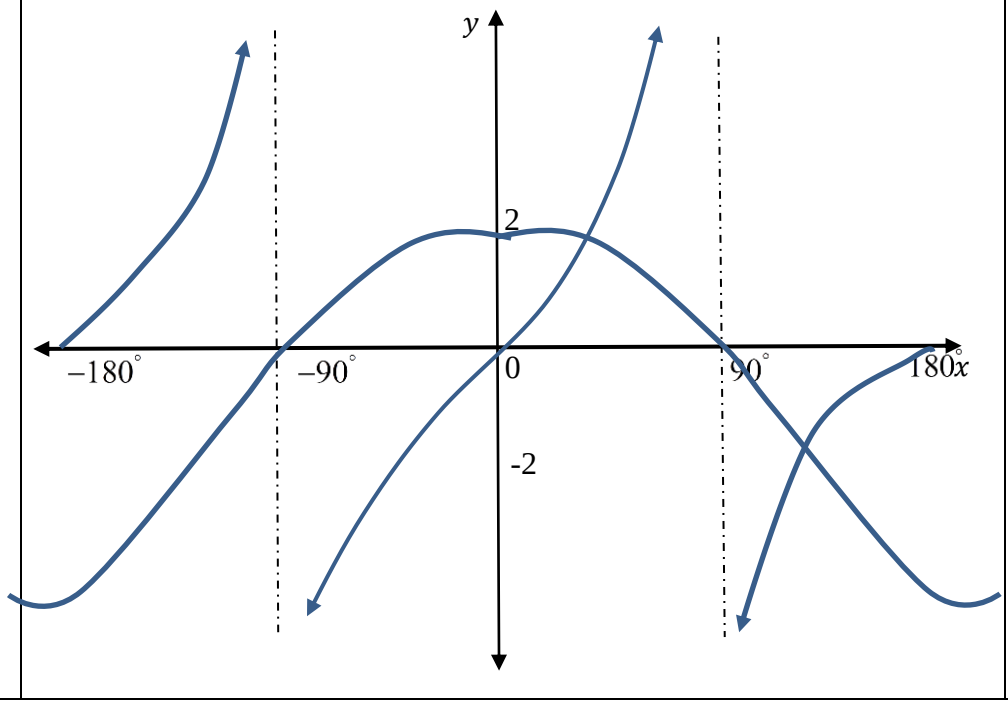
✓$\cos 50^\circ \,.\, \sec 50^\circ = 1$

✓1

✓$\frac{1}{2}$

(5)

3.3 3.3.1



$f(x) = 2\tan x$

✓form

✓asymptote

✓$(45^0; 2)$

$g(x) = \cos x + 1$

✓form

✓x- intercept

✓y- intercept

(6)

	3.3.2	1	✓1 (1)
	3.3.3	180°	✓1 (1)
	3.3.4	$x \in \left[-90^\circ; 90^\circ\right]$	✓ critical values ✓ inequality (2)
			[19]

QUESTION 4

4.1	$x = 60°$ $\therefore A\hat{} = 2x = 2(60°)$ $A\hat{} = 120°$ $\therefore A\hat{} + B\hat{} = 180°$ $\therefore AD//BC$	AB//DC co-interior angles Co-interior angles supplementary	✓B ✓ R ✓$A\hat{} + B\hat{} = 180°$ ✓ 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 // CR Given CR bisect $D\hat{C}E$ Corresponding angles BD // CR Sides opposite equal angles	✓R ✓ $\hat{C}_1 = \hat{C}_2$ ✓B/R ✓B ✓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	 ✓B/R ✓B/R ✓R (3)
5.3	BO = OD = 12 cm $\hat{O} = 90^\circ$ $AB^2 = AO^2 + BO^2$ $(13)^2 = AO^2 + (12)^2$ $AO^2 = 169 - 144$ $AO^2 = 25$ $AO = 5$ $AO = OC$ $AC = 10cm$	Diagonals bisect each other Diagonals bisect at 90° Pythagoras Diagonals bisect each other	✓B/R ✓B/R ✓ correct substitute ✓AO = 5 ✓AO = OC ✓AC = 10 cm (5)
			[13]
			TOTAL: 50