GAUTENG PROVINCE
EDUCATION
REPUBLIC OF SOUTH AFRICA

GAUTENG DEPARTMENT OF EDUCATION
PROVINCIAL EXAMINATION
JUNE 2018
GRADE 10

MATHEMATICS
PAPER 2

MARKING GUIDELINES

6 pages

GAUTENG DEPARTMENT OF EDUCATION

PROVINCIAL EXAMINATION

MATHEMATICS
(Paper 2)

MARKING GUIDELINES

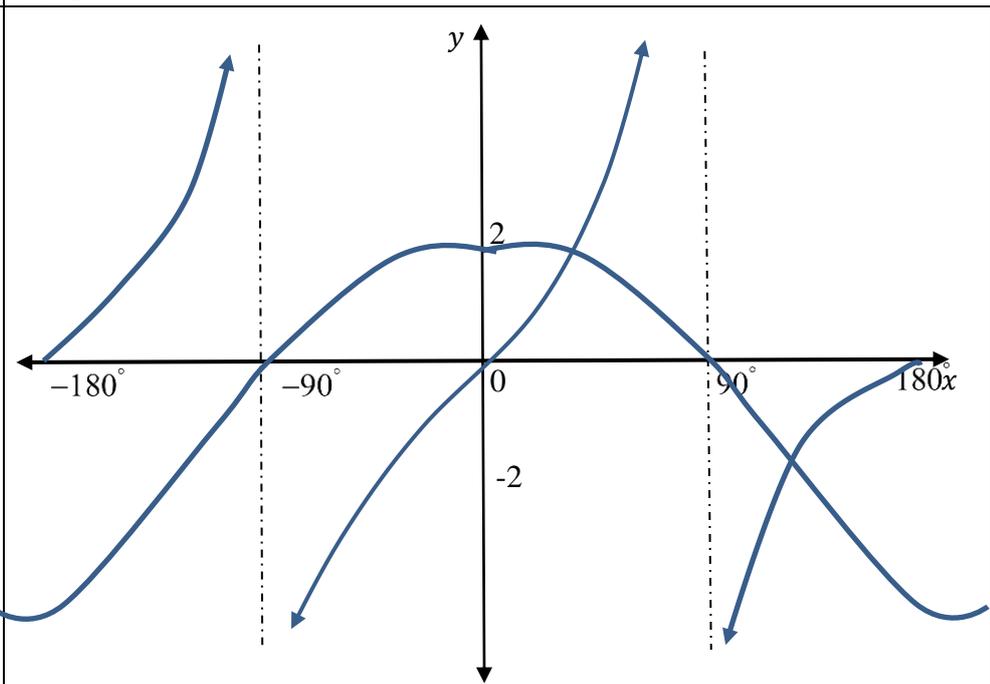| QUESTION 1			
1.1	1.1.1	$r^2 = x^2 + y^2$ $r^2 = 5^2 + 12^2$ $r^2 = 25 + 144$ $\sqrt{r^2} = \sqrt{169}$ $r = 13$	✓Pythagoras ✓ $r = 13$ (2)
	1.1.2	$sin\theta = \dfrac{12}{13}$ $cot\theta = \dfrac{5}{12}$	✓$\dfrac{12}{13}$ ✓$\dfrac{5}{12}$ (2)
	1.1.3	LHS: $\sin\theta . \cot\theta . \sec\theta$ RHS: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

QUESTION 2

2.1		$\dfrac{4\sin 120^{\circ}}{\tan 200^{\circ} - \cos 70^{\circ}}$ $=157{,}82$	✓✓ answer (2)
2.2	2.2.1	$3cos\theta = 2{,}1$ $cos\theta = \dfrac{2{,}1}{3}$ $cos\theta = 0{,}7$ $\theta = cos^{-1}0{,}7$ $\theta = 45{,}6^{\circ}$	✓ 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	$\cos0° + \sin60° + \sqrt{2}\sin45°$ $= 1 + \left(\dfrac{\sqrt{3}}{2}\right)^{2} + \sqrt{2}\left(\dfrac{1}{\sqrt{2}}\right)$ $= 1 + \dfrac{3}{4} + 1$ $= 2\dfrac{3}{4}$	✓1 $✓\dfrac{\sqrt{3}}{2}$ $✓\dfrac{1}{\sqrt{2}}$ $✓2\dfrac{3}{4}$ (4)
3.2	$x \cdot \tan 60° = \dfrac{\cos 50° \cdot \cos 30° \cdot \sec 50°}{\tan 45°}$ $x \cdot \sqrt{3} = \dfrac{(\cos 50° \cdot \sec 50°) \cdot \dfrac{\sqrt{3}}{2}}{1}$ $x = 1 \cdot \dfrac{\sqrt{3}}{2} \div \sqrt{3}$ $x = \dfrac{1}{2}$	$✓\sqrt{3}$ $✓\dfrac{\sqrt{3}}{2}$ $✓\cos 50° \cdot \sec 50° = 1$ ✓1 $✓\dfrac{1}{2}$ (5)

3.3	3.3.1	
		$f(x) = 2\tan x$ ✓form ✓asymptote $✓(45°; 2)$ $g(x) = \cos x + 1$ ✓form ✓x- intercept ✓y- intercept (6)

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

QUESTION 4

4.1	$x = 60°$ $\therefore A\square = 2x = 2(60°)$ $A\square = 120°$ $\therefore A\square + B\square = 180°$ $\therefore AD//BC$	AB//DC co-interior angles Co-interior angles supplementary	✓B ✓ R ✓$A\square + B\square = 180°$ ✓ R (4)
4.2	ABCD is a parallelogram.	Opposite sides parallel Opposite angles equal	✓parallelogram ✓ correct reason (2)
			[6]

QUESTION 5

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