EASTERN CAPE

Department of Education

OR TAMBO INLAND

Grade 11

MATHEMATICS

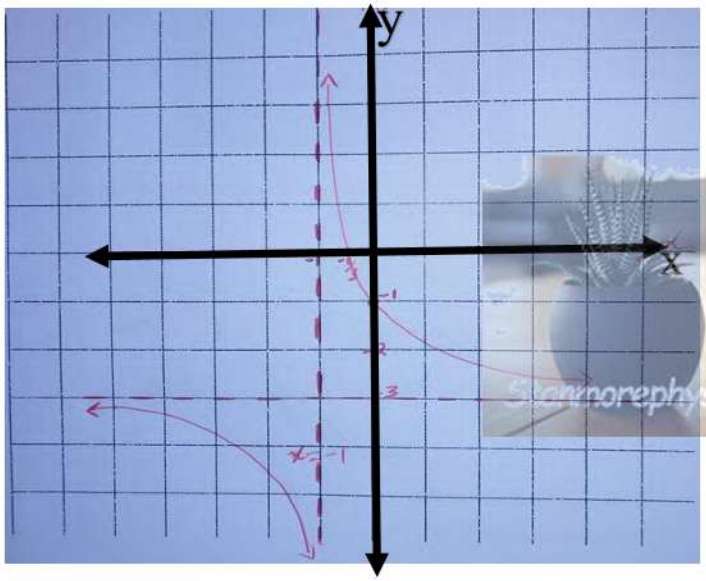
AUGUST 2024

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MARKS: 50

TIME: 1 HOUR

THIS QUESTION PAPER CONSISTS OF FOUR PAPES.

Question 1		
1.1	$x = 1$ $y = -3$	$x = 1$ ✓ $y = -3$ ✓ (2)
1.2	$y = (x + 1) - 3$ $= x - 2$ $y = -(x + 1) - 3$ $= -x - 4$	Method ✓ $y = x - 2$ ✓ Method ✓ $y = -x - 4$✓ (4)
1.3	$f(0) = \frac{2}{0+1} - 3$ $(0\,;-1)$	Substitution ✓ Coordinates ✓ (2)
1.4	$0 = \frac{2}{x+1} - 3$ $3(x + 1) = 2$ $x = -\frac{1}{3}$ $\quad (-\frac{1}{3}\,;0)$	Substitution ✓ $x - value$ ✓ Coordinates ✓ (3)
1.5	$g(x) = -\frac{2}{x+1} + 3$	✓✓ (2)
1.6		Horizontal Asymptote ✓ Vertical asymptote ✓ Shape of g ✓ Intercepts ✓ (4)
		[18]

QUESTION 2		
2.1	$g(69.3) = -2\cos(69.3° + 60°)$ $= 1.27$	Substitution ✓ Answer ✓ (2)
2.2	$A(0\,;2)$ or $A(0\,;-1)$ or $A(0\,;1.9)$	One mark for any of the three answers ✓ (1)
2.3	$a = 1$	Answer ✓ (1)
2.4	$360°$	Answer ✓ (1)
2.5	$D(120°;\,-1)$ or $D(120°;1)$	Any of the two ✓ (1)
2.6	$30° < x < 210°$ Accept $0 < x < 30°$ or $120° < x < 360°$	$30° < x < 210°$ ✓✓✓✓ Or $0 < x < 30°$ ✓✓ or $120° < x < 360°$ ✓✓ (4)
2.7	Amp of $g = 2$ Amp of $f = 1$ Amp of $g - Amp\ of\ f = 2 - 1$ $= 1$	Amp of $g = 2$ ✓ Amp of $f = 1$ ✓ Answer ✓ (3)
2.8	$h(x) = 2cosx$ or $h(x) = -2cosx$ accept	Three marks for any of the two ✓✓✓ (3)
		[18]
Question 3		
3.1	$B\hat{C}D = 40°$	✓ (1)
3.2	$Sin50° = \frac{25}{BC}$ $BC = 32.64$m	Substitution ✓✓ Answer ✓ (3)
3.3	$AC = BC = 32.64m$ $A\hat{C}B = 25°$ $AB^2 = 32.64^2 + 32.64^2 - 2 \times 32.64^2 cos25°$ $AB = 14.13m$	$AC = BC = 32.64m$ ✓ Calculations using cosine rule ✓✓✓ Answer ✓ (5)

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3.4	$tan50° = \frac{25}{BD}$ $BD = 20.98m$ $tan30° = \frac{25}{AD}$ $AD = 25\sqrt{3}$ m $cosB\hat{D}A = \frac{20.98^2 + (25\sqrt{3})^2 - 14.13^2}{2 \times 20.98 \times 25\sqrt{3}}$ $cosB\hat{D}A = 0.1736$ $B\hat{D}A = 80°$ AREA $\Delta ABD = \frac{1}{2} \times 20.98 \times 25\sqrt{3} \times sin80°$ $= 447.33m^2$	$BD = 20.98m$ ✓ $AD = 25\sqrt{3}$ m ✓ Subst to cosine rule ✓ $B\hat{D}A = 80°$ ✓ Answer ✓ (5)
		[14]
	TOTAL MARKS 50	

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