Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Porofensie Ya Kapa Botjhabela: Lefapha la Thuto

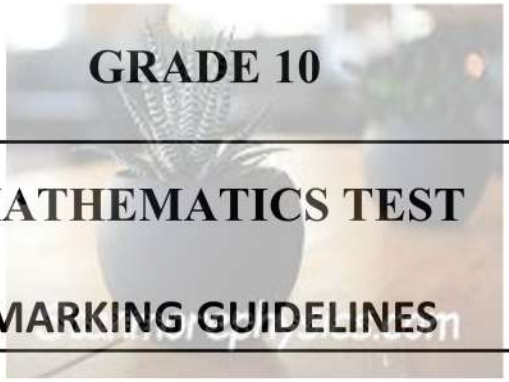
NATIONAL SENIOR CERTIFICATE



BUFFALO CITY METRO DISTRICT

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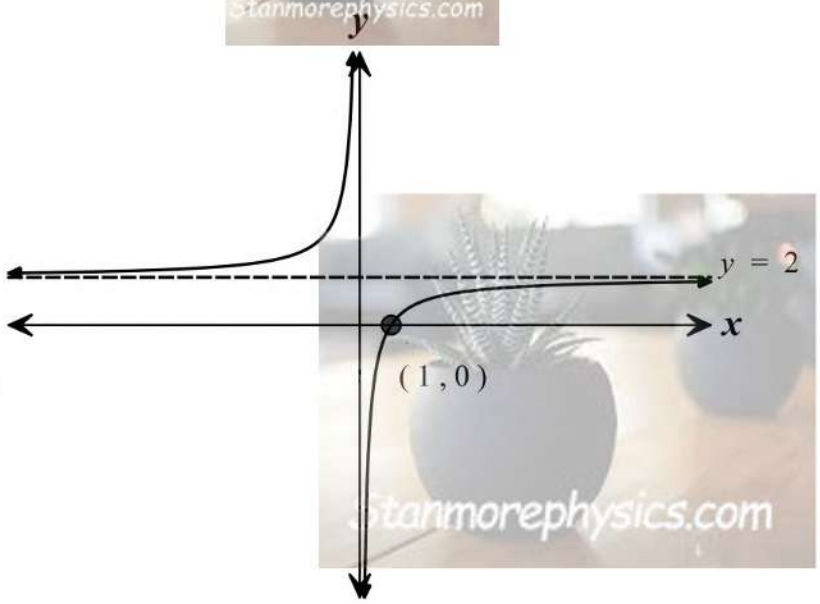
GRADE 10



MATHEMATICS TEST

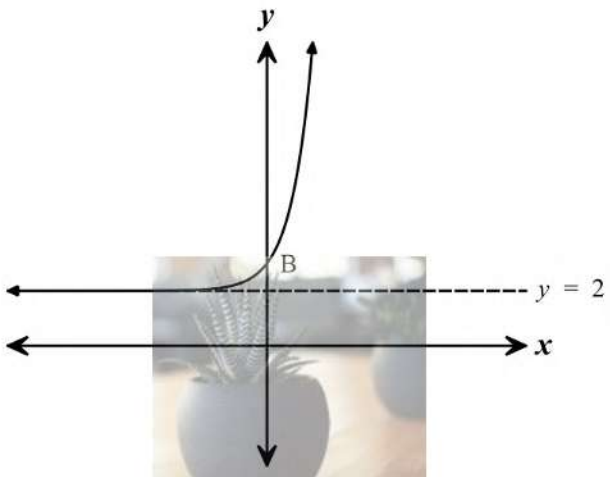
MARKING GUIDELINES

MARKS : 50
Time : 1 Hour

QUESTION 1			
1.1	x-intercept ($y = 0$) $0 = \frac{-2}{x} + 2$ $-2 = \frac{-2}{x}$ $-2x = -2$ $x = 1$	$y = 0$ ✓ $x = 1$ ✓	(2)
1.2	*y intercept (x = 0)* $y = \frac{-2}{0} + 2$ (undefined) ∴ There is no y intercept	$x = 0$ ✓ *Conclusion* ✓	(2)
1.3	$x = 0$ $y = 2$	$x = 0$ ✓ $y = 2$ ✓	(2)
1.4		Shape ✓ x-intercept ✓ Asymptote ✓	(3)
			[9]

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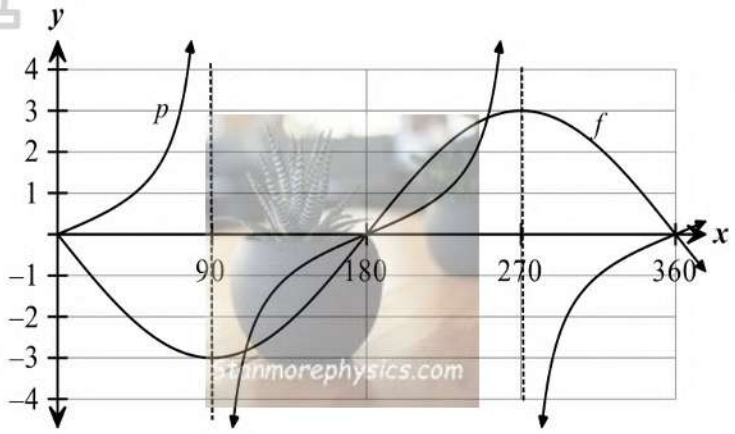
QUESTION 2



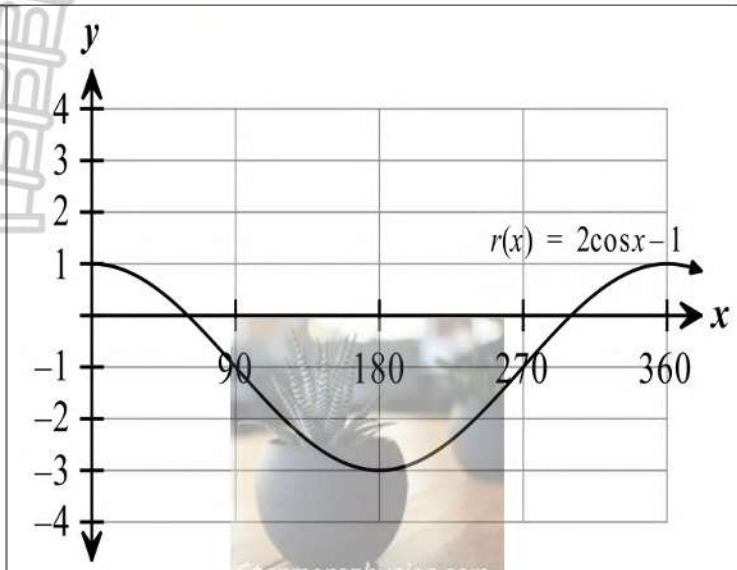
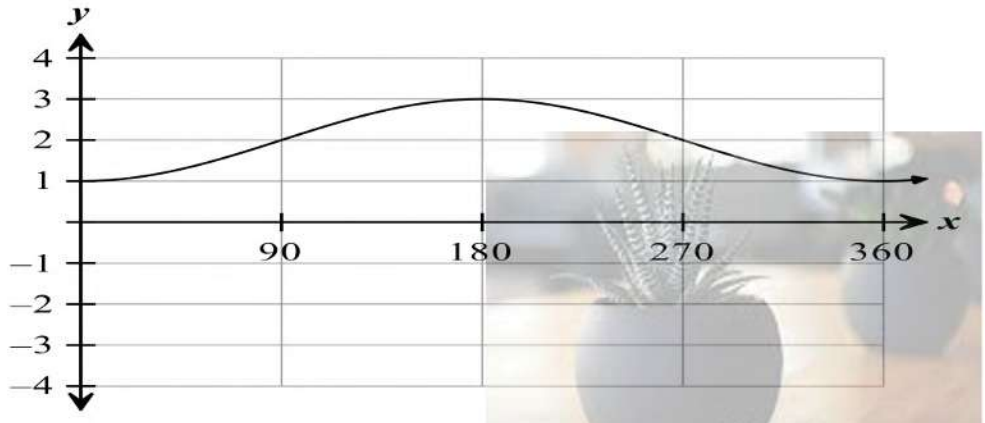
2.1	$y = 2$	$y = 2$✓	(1)
2.2	b = 2 $f(x) = a^x + 2$ at point (2;11) $11 = a^2 + 2$ $9 = a^2$ $\sqrt{9} = \sqrt{a^2}$ $a = \pm 3, a = 3$	$b = 2$ ✓ Substitution ✓ $a = 3$ ✓	(3)
2.3	$y \in \mathbb{R}, y > 2$ OR $y \in (2; \infty)$ **ACCEPT**: $y > 2$	Answer ✓✓	(2)
2.4	Since B is the y intercept ($x = 0$) $y = 3^0 + 2$ $y = 3$ $\therefore B(0;3)$	$x = 0$✓ $y = 3$✓	(2)
2.5	$t(x) = 3f(x) - 1$ $t(x) = 3(3^x + 2) - 1$ $t(x) = 3.3^x + 6 - 1$ $t(x) = 3^{x+1} + 5$	$3(3^x + 2) - 1$✓ Simplification ✓ $3^{x+1} + 5$ ✓	(3)
			[10]

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QUESTION 3

3.1	Amplitude = 3	3 ✓	(1)
3.2	Minimum value = $-3+5$ Minimum value = 2	2✓	(1)
3.3		Shape ✓ Asymptotes ✓ All intercepts ✓	(3)
3.4.1	$f(90°)-p(180°)$ $=-3-0$ $=-3$ **NOTE**: Learner is required to use graph not Algebraically!	-3 ✓ 0✓ -3✓	(3)
3.4.2	$x=90°$ $x=270°$	$x=90°$✓ $x=270°$✓	(2)
3.4.3	$90° < x \leq 180°$ OR $x \in (90°;180°]$ $270° < x \leq 360$ **OR** $x\epsilon(270°;360°]$ **NOTE**: Correct notation 90° and 270° must be excluded on the solution of a learner	$90° < x \leq 180°$ ✓✓ $270° < x \leq 360$ ✓✓	(4)
3.5.1	f(x) = -3sinx reflect f on x axis -y = $-3\sin x$ y = $3sinx$ moving 2 units upwards k(x)= 3sinx +2	3sin $(x)+2$ ✓✓	(2)
3.5.2	$-1 \leq y \leq 5$ OR $y \in [-1;5]$ **INCORRECT NOTATION: 0 MARKS**	Answer ✓✓	(2)
			[18]

QUESTION 4

4.1.1		Shape ✓ Turning point ✓ y-intercept ✓	(3)
4.1.2	Period = 360°	Answer ✓	(1)
4.1.3	Maximum value = 1	Answer ✓	(1)
4.1.4	$-3 \leq y \leq 1 \quad OR\ y \in [-3; 1]$	Answer ✓✓	(2)
4.2			
4.2.1	$a = -1$ $q = 2$	$a = -1$ ✓ $q = 2$ ✓	(2)
4.2.2	$180° \leq x \leq 360°$ **ACCEPT**: $180° < x < 360°$	Answer ✓	(1)
4.2.3	$90° \leq x \leq 270°$	Answer ✓✓	(2)
4.2.4	Minimum value = $1 - 3 = -2$	-2 ✓	(1)
			[13]

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