



education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 10

MATHEMATICS P1

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MARKING GUIDELINES

MARKS: 75

These marking guidelines consist of 6 pages.

Grade 10 – Marking Guidelines

QUESTION 1		
1.1.1	$\frac{1}{3}\pi$ = Irrational	✓ answer (1)
1.1.2	$\frac{6}{7} + \sqrt[3]{8}$ = Rational	✓ answer (1)
1.2	$\begin{array}{r} \text{Let } x = 0,0\dot{4} \\ 100x = 4,4\dot{4} \\ \underline{10x = 0,4\dot{4}} \\ 90x = 4 \\ x = \frac{4}{90} \\ x = \frac{2}{45} \end{array}$	✓ $100x = 4,4\dot{4}$ ✓ $90x = 4$ ✓ answer (3)
1.3.1	$x = 0 \quad \begin{array}{l} \text{of} \\ \text{or} \end{array} \quad \begin{array}{l} 3x - 2 = 0 \\ \\ x = \frac{2}{3} \end{array}$	✓ $x = 0$ ✓ $x = \frac{2}{3}$ (2)
1.3.2	$\begin{array}{l} x + 2 = 0 \quad \begin{array}{l} \text{of} \\ \text{or} \end{array} \quad x - 3 = 0 \\ \\ x = -2 \quad \begin{array}{l} \text{of} \\ \text{or} \end{array} \quad x = 3 \end{array}$	✓ -2 ✓ 3 (2)
1.4	$\begin{array}{l} \sqrt{9} < \sqrt{12} < \sqrt{16} \\ 3 < \sqrt{12} < 4 \end{array}$	✓ $\sqrt{9} < \sqrt{12} < \sqrt{16}$ ✓ $3 < \sqrt{12} < 4$ (2)
1.5	$\begin{array}{l} -2^2, 2^2, 2^{-2}, 2^{2^0}, 2^{2^2} \\ -4, 4, \frac{1}{4}, 2, 16 \\ -2^x, 2^{-x}, 2^{x^0}, 2^x, 2^{x^2} \end{array}$	✓ method ✓ answer (2)
		[13]

QUESTION 2		
2.1.1	$3ab(a - 4) - 7a(a - 4)$ $(a - 4)(3ab - 7a)$ $a(a - 4)(3b - 7)$	✓ $(3ab - 7a)$ ✓ answer (2)
2.1.2	$x^4 - 16$ $= (x^2 - 4)(x^2 + 4)$ $= (x - 2)(x + 2)(x^2 + 4)$	✓ $(x^2 - 4)$ ✓ $(x^2 + 4)$ ✓ $(x - 2)(x + 2)$ ✓ answer (4)
2.1.3	$6x^2 + 7x + 2$ $= (2x + 1)(3x + 2)$	✓ $(2x + 1)$ ✓ $(3x + 2)$ (2)
2.2.1	$\frac{x^3y^{-2} \cdot (y^3x^{-4})^0}{x^{-7}y^5}$ $= \frac{x^3x^7 \times 1}{y^2y^5}$ $= \frac{x^{10}}{y^7}$	✓ 1 ✓ $\frac{x^3x^7}{y^2y^5}$ ✓ answer (3)
2.2.2	$\frac{3}{x^2 - 4} + \frac{2}{(x - 2)^2}$ $= \frac{3}{(x - 2)(x + 2)} + \frac{2}{(x - 2)(x - 2)}$ $= \frac{3(x - 2) + 2(x + 2)}{(x - 2)(x - 2)(x + 2)}$ $= \frac{3x - 6 + 2x + 4}{(x - 2)(x - 2)(x + 2)}$ $= \frac{5x - 2}{(x - 2)(x - 2)(x + 2)}$	✓ LCM ✓ multiplication with LCM ✓ simplification ✓ answer (4)
		[15]

QUESTION 3		
3.1.1	$\frac{1}{3}x + \frac{1}{2}x - 10 = 0$ $\frac{2x}{6} + \frac{3x}{6} = 10$ $5x = 60$ $x = 12$	✓ LCM ✓ simplification ✓ answer (3)
3.1.2	$3^{x-2} = \frac{1}{3^x}$ $3^{x-2} = 3^{-x}$ $x - 2 = -x$ $x = 1$	✓ 3^{-x} ✓ $x - 2 = -x$ ✓ answer (3)
3.1.3	$-2 < -3x + 4 \leq 7$ $-2 - 4 < -3x \leq 7 - 4$ $-6 < -3x \leq 3$ $-1 \leq x < 2$	✓ subtract 4 ✓ divide by 3 ✓ answer (3)
3.2	$y = 8 - x \dots\dots(1) \quad \text{and} \quad x + 2y = 21 \dots\dots\dots(2)$ <p><i>Substitute</i> <i>vervang</i> (1) in (2)</p> $x + 2(8 - x) = 21$ $x + 16 - 2x = 21$ $\underline{x = -5}$ <p><i>Substitute</i> <i>vervang</i> $x = -5$ in (1)</p> $y = 8 - (-5)$ $\underline{y = 13}$	✓ $y = 8 - x$ ✓ substitute ✓ $x = -5$ ✓ $y = 13$ (4)
3.3	$\text{LHS} = x^{\frac{2}{9}} \times x^{\frac{2}{18}}$ $= x^{\frac{4+2}{18}}$ $= x^{\frac{6}{18}}$ $= x^{\frac{1}{3}}$ $= \text{RHS}$	✓ LCM ✓ add exponents ✓ simplify ✓ = RHS (4)
		[17]

Grade 10 – Marking Guidelines

QUESTION 4		
4.1	$x \in R$	✓ answer (1)
4.2.1	$f(x) = \frac{2}{3}x^2 + q$ <i>Substitute</i> <i>vervang</i> $(-2; -1)$ $-1 = \frac{2}{3}(-2)^2 + q$ <i>of</i> $-3 = \frac{2}{3}(-1)^2 + q$ $-1 = \frac{8}{3} + q$ $-3 - \frac{2}{3} = q$ $-\frac{11}{3} = q$	✓ formula ✓ substitution (2)
4.2.2	$g(x) = \frac{k}{x} + 1$ <i>Vervang</i> <i>substitute</i> $(-2; -1)$ $-1 = \frac{k}{-2} + 1$ $-2 = \frac{k}{-2}$ $k = 4$	✓ substitution ✓ simplification ✓ answer (3)
4.2.3	CD = 1 unit EF = 2 units	✓ CD ✓ EF (2)
4.2.4	$AB^2 = 1^2 + 2^2$ $= 5$ $AB = 2,24$	✓ Pythagoras ✓ answer (2)
4.2.5	$0 = \frac{2}{3}x^2 - \frac{11}{3}$ $0 = 2x^2 - 11$ $11 = 2x^2$ $\pm\sqrt{5,5} = x$ $\pm 3,35 = x$	✓ $y=0$ ✓ simplification ✓ answer (3)

4.3.1	$x \in (-\infty; 0)$ <i>of</i> <i>or</i> $x < 0$	✓ ✓ $(-\infty; 0)$ (2)
4.3.2	x – <i>intercept, let</i> $y = 0$ $0 = \frac{4}{x} + 1$ $-1 = \frac{4}{x}$ $x = -4$	✓ $y = 0$ ✓ answer (2)
4.3.3	$x < -3,35$ or $0 < x < 3,35$	✓ $x < -3,35$ ✓✓ $0 < x < 3,35$ (3)
4.4	$2g(x) + 1 = 2\left(\frac{4}{x} + 1\right) + 1$ $= \frac{8}{x} + 2 + 1$ $= \frac{8}{x} + 3$	✓ substitution ✓ answer (2)
		[22]
QUESTION 5		
5.1	$2x + 4 = 0$ $2x = -4$ $x = -2$	✓ $2x + 4 = 0$ $2x = -4$ ✓ $x = -2$ (2)
5.2	B (0;4) D (0;2) Coordinate of C: $2x + 4 = 2$ $2x = -2$ $x = -1$ C (-1;2) Area of CAOD = $\frac{1}{2}(2 + 1)2$ = 3 square units Or Area of CAOD = Area of AOB – Area of CBD $= \frac{1}{2}(2)(4) - \frac{1}{2}(1)(2)$ $= 3$ Square units	✓ B (0;4) ✓ D (0;2) ✓ $2x + 4 = 2$ ✓ C (-1;2) ✓ $\frac{1}{2}(2 + 1)2$ ✓ 3 square units (6)
		[8]
TOTAL: [75]		