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education

Department:
Education
North West Provincial Government
REPUBLIC OF SOUTH AFRICA

PROVINCIAL ASSESSMENT

GRADE 10

MATHEMATICS P1

JUNE 2024

MARKING GUIDELINES

MARKS: 75

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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	*Let* $x = 0,0\dot{4}$ $100x = 4,4\dot{4}$ $10x = 0,4\dot{4}$ $90x = 4$ $x = \frac{4}{90}$ $x = \frac{2}{45}$	✓ $100x = 4,4\dot{4}$ ✓ $90x = 4$ ✓ answer (3)
1.3.1	$x = 0$ *of* *or* $3x - 2 = 0$ $x = \frac{2}{3}$	✓ $x = 0$ ✓ $x = \frac{2}{3}$ (2)
1.3.2	$x + 2 = 0$ *of* *or* $x - 3 = 0$ $x = -2$ *of* *or* $x = 3$	✓ -2 ✓ 3 (2)
1.4	$\sqrt{9} < \sqrt{12} < \sqrt{16}$ $3 < \sqrt{12} < 4$	✓ $\sqrt{9} < \sqrt{12} < \sqrt{16}$ ✓ $3 < \sqrt{12} < 4$ (2)
1.5	-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}	✓ method ✓ answer (2)
		[13]

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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	$\frac{x^3y^{-2}\,.\,(y^3x^{-4})^0}{x^{-7}y^5}$ $=\frac{x^3x^7\times 1}{y^2y^5}$ $=\frac{x^{10}}{y^7}$	✓ 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]

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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	$y = 8 - x$ ……(1) and $x + 2y = 21$ ……..(2) $\frac{Substitute}{vervang}$ (1) *in* (2) $x + 2(8 - x) = 21$ $x + 16 - 2x = 21$ $\underline{\boldsymbol{x = -5}}$ $\frac{Substitute}{vervang}$ $x = -5$ *in* (1) $y = 8 - (-5)$ $\underline{\boldsymbol{y = 13}}$	✓ $y = 8 - x$ ✓ substitute ✓ $x = -5$ ✓ $y = 13$ (4)
3.3	LHS = $x^{\frac{2}{9}} \times x^{\frac{2}{18}}$ $= x^{\frac{4+2}{18}}$ $= x^{\frac{6}{18}}$ $= x^{\frac{1}{3}}$ = RHS	✓ LCM ✓ add exponents ✓ simplify ✓ = RHS (4)
		[17]

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QUESTION 4		
4.1	$x \in R$	✓ answer (1)
4.2.1	$f(x) = \frac{2}{3}x^2 + q$ $\frac{Substitute}{vervang}(-2;-1)$ $-1 = \frac{2}{3}(-2)^2 + q$ $\frac{of}{or}$ $-3 = \frac{2}{3}(-1)^2 + q$ $-1 = \frac{8}{3} + q$ $-3 - \frac{2}{3} = q$ $-\frac{11}{3} = q$	✓ formula ✓ substitution (2)
4.2.2	$g(x) = \frac{k}{x} + 1$ $\frac{Vervang}{substitute}$ $(-2;-1)$ $-1 = \frac{k}{-2} + 1$ $-2 = \frac{k}{-2}$ $k = 4$	✓ 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)

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4.3.1	$x \in (-\infty; 0)$ $\frac{of}{or}$ $x < 0$	✓ ✓ $(-\infty; 0)$ (2)
4.3.2	$x - intercept, let\ y = 0$ $0 = \frac{4}{x} + 1$ $-1 = \frac{4}{x}$ $x = -4$	✓ $y = 0$ ✓ answer (2)
4.3.3	$x < -3{,}35$ or $0 < x < 3{,}35$	✓ $x < -3{,}35$ ✓✓ $0 < x < 3{,}35$ (3)
4.4	$2g(x) + 1 = 2(\frac{4}{x} + 1) + 1$ $= \frac{8}{x} + 2 + 1$ $= \frac{8}{x} + 3$	✓ 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]

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