LIMPOPO

PROVINCIAL GOVERNMENT

REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF

EDUCATION

SEKHUKHUNE EAST DISTRICT – DISTRICT ON THE RISE

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GRADE 10

MATHEMATICS

TEST 1

MARKING GUIDELINES

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11 MARCH 2024

TOTAL MARKS: 50

This marking guidelines consists of 5 pages including the cover page.

NOTE:

- **If a candidate answers a question TWICE, mark only the first one.**
- **Consistent accuracy applies in ALL aspects of the marking memorandum.**

QUESTION 1

1.1	Let $x = 0{,}282828$ ..... (i) $100\,x = 28{,}2828$ ..... (ii) $99x = 28$ $\therefore x = \frac{28}{99}$	✓ Equation (i) and (ii) ✓ $99x = 28$ ✓ $x = \frac{28}{99}$	(3)
1.2	$\sqrt{36} < \sqrt{42} < \sqrt{49}$ $6 < \sqrt{42} < 7$ $\sqrt{42}$ lies between 6 and 7	✓ $\sqrt{36} < \sqrt{42} < \sqrt{49}$ ✓ $6 < \sqrt{42} < 7$	(2)
1.3.1	$a^3 - a^2 = a^2(a-1)$	✓ $a(a-1)$	(1)
1.3.2	$y^2 - yx - z^2 - zx$ $y^2 - z^2 - yx - zx$ $(y+z)(y-z) - x(y+z)$ $(y+z)(y-z-x)$	✓ Common factor ✓ Difference of 2 squares ✓ Answer	(3)
1.4.1	$\frac{y^2 - y - 6}{y^2 - 3y} \div (y+2)$ $\frac{(y-3)(y+2)}{y(y-3)} \times \frac{1}{y+2}$ $= \frac{1}{y}$	✓ Factors (numerator & denominator) ✓ $\frac{1}{y+2}$ and × sign ✓ Answer	(3)
1.4.2	$\frac{3^{2x+2} - 9^x}{3^x . 3^{2x+1}}$ $= \frac{3^{2x} . 3^2 - 3^{2x}}{3^x . 3^{2x} . 3^1}$ $= \frac{3^{2x}(3^2 - 1)}{3^x . 3^{2x} . 3}$ $= \frac{8}{3^{x+1}}$	✓ Simplification ✓ Common factor ✓ Answer	(3)

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1.5	$3x^2 - px - 6$ $= (x - 3)(3x + 2)$ $= 3x^2 - 7x - 6$ $\therefore p = 7$	✓ $(3x + 2)$ ✓ Product ✓ Answer	(3)
			[18]

QUESTION 2



2.1	$x^{\frac{1}{2}} = 5$ $\left(x^{\frac{1}{2}}\right)^2 = 5^2$ $x = 25$	✓ Raise to reciprocal exponent ✓ Answer	(2)
2.2.1	$2x - 9 = 3$ $2x = 12$ $x = 6$	✓ Answer	(1)
2.2.2	$x(x - 6) = 27$ $x^2 - 6x - 27 = 0$ $(x - 9)(x + 3) = 0$ $x = 9$ or $x = -3$	✓ Standard form ✓ Factors ✓ Both answers	(3)
2.2.3	$2^x = \frac{1}{8}$ $2^{-x} = 2^{-3}$ $-x = -3$ $x = 3$	✓ equating exponents ✓ answer	(2)
2.2.4	$v^2 = u^2 + 2ax$ $v^2 - u^2 = 2ax$ $x = \frac{v^2 - u^2}{2a}$	✓ $v^2 - u^2 = 2ax$ ✓ Answer	(2)

2.3	$2x + 3y = 4$ ... ① $-6y - 2x = 2$ ... ② $-3y - x = 1$ $-3y - 1 = x$ ... ③ Substitute ③ into equation ① $2(-3y - 1) + 3y = 4$ $-6y - 2 + 3y = 4$ $-3y = 6$ $y = -2$ $-3(-2) - 1 = x$ $\therefore x = 5$	✓ Equation…③ ✓ Substitution ✓ y - value ✓ x - value	(4)
2.4	$a + b = 2$ and $a^2 - b^2 = 8$ $a^2 - b^2 = 8$ $(a + b)(a - b) = 8$ but $(a + b) = 2$ $2(a - b) = 8$ $a - b = 4$ $-b + a = 4$ $-(b - a) = 4$ $b - a = -4$	✓$2(a - b) = 8$ ✓$a - b = 4$ ✓ $b - a = -4$	(3)
2.5	$0 \leq x < 5$, $x \in \mathbb{N}_0$	✓ End points ✓ Notation	(2)
2.6	$3(x - 12) = 2x - 12$ $3x - 36 = 2x - 12$ $x = 24$	✓ Both equations ✓ Simplification ✓ Answer	(3)
			[22]

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QUESTION 3

3.1.1	$sin\,\theta = \frac{5}{13}$	$\frac{\checkmark 5}{\checkmark 13}$	(2)
3.1.2	$\sec\theta = \frac{13}{12}$	$\frac{\checkmark 13}{\checkmark 12}$	(2)
3.1.3	$\tan\theta = \frac{5}{12}$	$\frac{\checkmark 5}{\checkmark 12}$	(2)
3.1	$\sin^2 45° - \cos 60° + \tan 10° \cdot \cot 10°$ $= \left(\frac{1}{\sqrt{2}}\right)^2 - \frac{1}{2} + 1$ $= \frac{1}{2} - \frac{1}{2} + 1$ $= 1$	✓ $\frac{1}{\sqrt{2}}$ ✓ $\frac{1}{2}$ ✓ 1 ✓ Answer	(4)
			[10]

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