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education

Department of Education
FREE STATE PROVINCE

GRADE 10

MATHEMATICS MARKING GUIDELINE
JUNE 2024

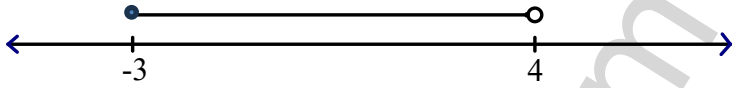
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This question paper consists of 4 pages

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MEMO`

QUESTION 1

1.1.1	$q=\sqrt{(-1)^2-4(2)(-4)}$ $=\sqrt{33}$	✓ subst. ✓ answer (2)
1.1.2	Irrational	✓ answer (1)
1.1.3	$25<33<36$ $\sqrt{25}<\sqrt{33}<\sqrt{36}$ $\therefore 5<\sqrt{33}<6$	✓✓ answer (2)
1.2		✓✓answer (2)
1.3	$x-3=0$ $\therefore x=3$	✓answer (1)
		[08]

QUESTION 2

2.1.1	$(2x-3)(4x^2+6x+9)$ $=8x^3+12x^2+18x-12x^2-18x-27$ $=8x^3-27$	✓ $8x^3+12x^2+18x$ ✓ $-12x^2-18x-27$ ✓ answer (3)
2.1.2	$\frac{x^2}{4}-\frac{y^2}{9}$	✓ ✓$\frac{x^2}{4}-\frac{y^2}{9}$ (1)
2.2.1	$(x-5)(x+4)$	✓ ✓ factors (4)
2.2.2	$2a^2(a-b)-8b^2(a-b)$ $=(a-b)(2a^2-8b^2)$ $=2(a-b)(a-2b)(a+2b)$	✓ change of sign ✓ common factor ✓ $2(a-b)$ ✓ difference of two squares (4)

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2.2.3	$\frac{3.2^m - 4.2^m.2^{-2}}{2^m - 2^m.2^{-1}}$ $= \frac{2^m\left(3 - 4.\frac{1}{4}\right)}{2^m\left(1 - \frac{1}{2}\right)}$ $= \frac{2}{\frac{1}{2}}$ $= 4$	✓ common factor ✓ simplification ✓ answer (3)
		[14]

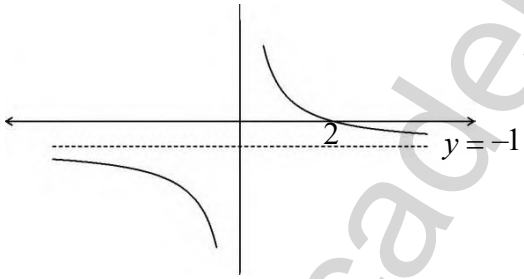
QUESTION 3

3.1.1	$8(2x) - 3(3x) = 7(24)$ $16x - 9x = 168$ $7x = 168$ $\therefore x = 24$	✓ Multiply by 24 ✓ simplification ✓ answer (3)
3.1.2	$x^2 - x - 6 = 0$ $(x-3)(x+2) = 0$ $\therefore x = 3$ or $x = -2$	✓ standard form ✓ factors ✓ $x = 3$ ✓ $x = -2$ (4)
3.1.3	$-1 - 3 < -2x \leq 5 - 3$ $\frac{-4}{-2} > x \geq \frac{2}{-2}$ $-1 \leq x < 2$	✓ simplification ✓ ✓ answer (3)
3.1.4	$2^x.2^{x+1} = 32$ $2^{x+x+1} = 2^5$ $2x + 1 = 5$ $x = 2$	✓ base 2 ✓ equating exponents ✓ answer (3)
3.2	$x = 2y - 1$ $3(2y-1) + 5y = 8$ $6y - 3 + 5y = 8$ $11y = 11$ $y = 1$ $x = 2(1) - 1$ $x = 1$	✓ $x = 2y - 1$ ✓ $3(2y-1) + 5y = 8$ ✓ $y = 1$ ✓ $x = 1$ (4)
		[17]

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QUESTION 4

4.1	$x=0$ $y=-1$	✓ $x=0$ ✓ $y=-1$ (2)
4.2	$0=\frac{2}{x}-1$ $1=\frac{2}{x}$ $x=2$	✓ $0=\frac{2}{x}-1$ ✓ answer (2)
4.3		✓ asymptotes ✓ intercept ✓ shape (3)
4.4	$y\varepsilon(-\infty;8]$	✓ $y\varepsilon(-\infty;8]$ (1)
4.5	$\mathrm{R}(-2;0)$	✓ answer (3)
4.6	$x\varepsilon(-2;0)$	✓ ✓ answer (2)
		[11]

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