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MATHEMATICS

MARKING GUIDELINE

GRADE 11: CYCLE TEST **FEB 2026** TERM 1

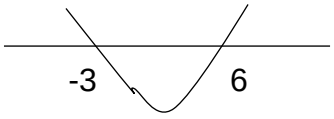
TIME: 1 HOUR **TOTAL MARKS**: 50

NOTE:

- If a candidate answered a question TWICE, mark only the first attempt.
- Consistent accuracy applies in ALL aspects of the marking memorandum.
- Assuming values/answers to solve a problem is unacceptable

QUESTION 1

1.1.1	$x(x-1)(3x+1)=0$ $x=0$ ✓ or $x=1$ ✓ or $x=-\frac{1}{3}$ ✓	3A $x-$ values	(3)
1.1.2	$2x^2-3x=0$ $x(2x-3)=0$ ✓ $x=0$ or $x=\frac{3}{2}$ ✓	1A factorizing 1CA both x-values	(2)
1.1.3	$(x+3)(x-1)=-x+1$ $x^2+2x-3+x-1=0$ $x^2+3x-4=0$ ✓ $(x+4)(x-1)=0$ $x=-4$ ✓ or $x=1$ ✓	1MA standard form 1CA factorising 2CA x-values	(4)
1.1.4	$3x^2-4x=5$ $3x^2-4x-5=0$ ✓ $x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$ $=\frac{-(-4)\pm\sqrt{(-4)^2-4(3)(-5)}}{2(3)}$ ✓ $=\frac{4\pm\sqrt{16+60}}{6}$ ✓ $x=2{,}1$ or $-0{,}8$ ✓	1MA standard form 1A substitution in correct Formula 1CA simplify 1CA both x values	(4)

1.1.5	$x^2 > 3(x+6)$ $x^2 - 3x - 18 > 0$ ✓ $(x-6)(x+3) > 0$ ✓  $x < -3$ ✓ $or\ x > 6$ ✓ Or $x \in (-\infty;-3)$ ✓ $\cup\ (6;\infty)$ ✓	1A std form 1MA factors 1CA $x < -3\ or\ (-\infty;-3)$ 1CA $x > 6\ or\ (6;\infty)$	(4)
1.1.6	$x^2 + 3x - \frac{9}{x^2+3x} = 8$ Let $k = x^2 + 3x$ $k^2 - 8k - 9 = 0$ ✓ $(k-9)(k+1) = 0$ $k = 9\ or\ k = -1$ ✓ $9 = x^2 + 3x$ or $-1 = x^2 + 3x$ ✓ $x^2 + 3x - 9 = 0$ $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $= \frac{-3 \pm \sqrt{3^2 - 4.1.-9}}{2.1}$ $= \frac{-3 \pm 3\sqrt{5}}{2}$ $x = 1{,}85\ or -4{,}85$ ✓ Or $x^2 + 3x + 1 = 0$ $x = \frac{-b \pm \sqrt{b^2-4ac}}{2a}$ $= \frac{-3 \pm \sqrt{3^2 - 4.1.1}}{2.1}$ $= \frac{-3 \pm \sqrt{5}}{2}$ $x = -0.38\ or -2{,}62$ ✓	1MA standard form 1CA both values of k 1CA substitute both values of k 1CA $x - values\ for\ k = 9$ 1CA $x - values\ for\ k = -1$	(5)

1.2	$6x^2 + dx - 12$ $= (2x - 3)(3x + 4)$ $= 6x^2 - 9x + 8x - 12$ $\therefore d = -1$ ✓✓ Or $2x - 3$ $\therefore x = \frac{3}{2}$ Sub x $6(\frac{3}{2})^2 + d\frac{3}{2} - 12 = 0$ $= \frac{27}{2} + \frac{3}{2}d - 12$ $\frac{3}{2}d = -\frac{3}{2}$ $\therefore d = -1$ ✓✓	2MA answer	(2)
1.3	$2x + y = 3$ and $2y + 2x^2 - 5 = -x$ $y = 3 - 2x$ ✓$or\ y = -2x + 3$ $2(3 - 2x)$ ✓ $+ 2x^2 - 5 = -x$ $6 - 4x + 2x^2 - 5 + x = 0$ $2x^2 - 3x + 1 = 0$ ✓ $(2x - 1)(x - 1) = 0$ $x = \frac{1}{2}\ 0r\ x = 1$ ✓ $y = 3 - 2\left(\frac{1}{2}\right)\ or\ \ y = 3 - 2(1)$ $y = 2\ \ or\ \ y = 1$ ✓	1A $y = 3 - 2x$ $or\ y = -2x + 3$ 1CA substitution 1CA standard form 1CA both values of x 1CA both values of y	(4)
			[28]

QUESTION 2

2.1.1	$x^{-\frac{3}{4}} = 27$ $x = (3^3)^{-\frac{4}{3}}$ ✓ $x = 3^{-3}$ $x = \frac{1}{27}$ ✓	1M multiply with the exponent inverse 1CA answer	(2)
2.1.2	$3^{2x+1} + 4.3^{2x} = 21$ $3^{2x}.3^1 + 4.3^{2x} = 21$ 3^{2x} ✓$(3+4) = 21$ $3^{2x}(7) = 21$ $3^{2x} = 3$ ✓ $\therefore 2x = 1$ ✓ $x = \frac{1}{2}$ ✓	1A common factor 1M simplify 1M exponent 1CA answer	(4)
2.1.3	$\frac{54^m - 18^{m-1}.3^{m+1}}{(3^{m-1})^2.6^m}$ $= \frac{(2\times 3^3)^m - (2\times 3^2)^{m-1}.3^{m+1}}{3^{2m-2}.(2\times 3)^m}$ ✓ $= \frac{2^m.3^{3m} - 2^{m-1}\times 3^{2m-2}.3^{m+1}}{3^{2m-2}.2^m \times 3^m}$ $= \frac{2^m.3^{3m} - 2^m.2^{-1}.3^{3m}.3^{-1}}{3^{3m}.2^m \times 3^{-2}}$ ✓ $= \frac{2^m.3^{3m}$ ✓$(1-\frac{1}{6})}{2^m.3^{3m}.\frac{1}{9}}$ ✓ $= \frac{5}{6}\times\frac{9}{1}$ ✓ $= \frac{15}{2}$ ✓	1A prime factors 1A simplification 1CA common factor 1CA simplification 1M multiply with inverse 1CA answer	(6)

2.2.1	$\sqrt[3]{125x^6} - \sqrt[4]{81x^8} + \sqrt{36x^4}$ $= 5x^2$ ✓ $- 3x^2$ ✓ $+ 6x^2$ ✓ $= 8x^2$ ✓	3MA simplification of each term	(3)
.2.2	$\sqrt{x-1} + 3 = x$ $(\sqrt{x-1})^2 = (x-3)^2$ ✓ $x - 1 = x^2 - 6x + 9$ $x^2 - 6x + 9 - x + 1 = 0$ $x^2 - 7x + 10 = 0$ $(x-5)(x-2) = 0$ ✓ $x = 5 \quad or\ x \neq 2$ ✓ or $x = 2 \ \ N/A$	1A squaring 1CA factorising 1CA answer $x = 5\ or\ \ x \neq 2$ Or just $\therefore x = 5$ Or If not $x \neq 2$ then NO mark for answer	(3)
2.2.3	$\frac{y-25}{\sqrt{y}+5}$ $= \frac{y-25}{\sqrt{y}+5} \times \frac{\sqrt{y}-5}{\sqrt{Y}-5}$ ✓ $= \frac{y\sqrt{y}-5y-25\sqrt{y}+25}{y-25}$ ✓ ✓	1MA multiply with conjegute 1CA answer numerator 1CA *answer* denominator	(3)
			[22]
			[50]

TAXONOMY LEVELS					
GRADE 11					
MATHEMATICS					
CYCLE TEST TERM 1					
QUESTION	**KNOWLEDGE**	**ROUTINE PROCEDURES**	**COMPLEX PROCEDURES**	**PROBLEM SOLVING**	**TOTAL**
DESIRED %	**20%**	**35%**	**30%**	**15%**	**100%**
1.1.1	3				3
1.1.2		2			2
1.1.3			4		4
1.1.4		4			4
1.1.5		4			4
1.1.6			5		5
1.2				2	2
1.3				4	4
2.1.1	2				2
2.1.2		4			4
2.1.3			6		6
2.2.1	4				4
2.2.2		3			3
2.2.3				3	3
Total	**~~9~~**	**~~17~~**	**~~15~~**	**~~9~~**	**~~50~~**
Actual %	**~~18.00~~**	**~~34.00~~**	**~~30~~**	**~~18~~**	**~~100~~**
Desired %	**20%**	**35%**	**30%**	**15%**	**100**