FINAL

KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

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NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICS P1

JUNE 2025

MARKING GUIDELINE

MARKS: 50

This question paper consists of 5 pages.

CAPS – Grade 10
Marking Guideline

QUESTION 1

Consider the expression: $K = \frac{3n}{\sqrt{n+5}}$		
1.1	$n = 0$	✓A answer (1)
1.2	$n = -5$	✓A answer (1)
1.3	$n < -5$	✓A answer (1)
		[3]

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QUESTION 2

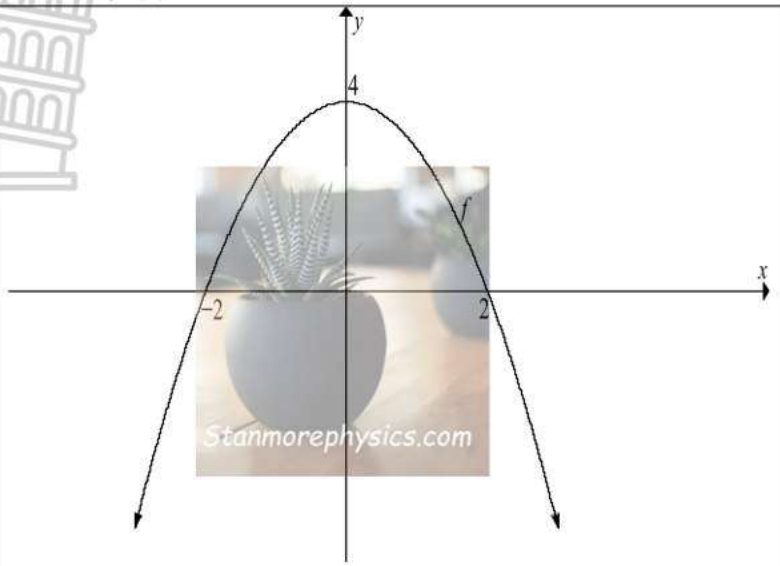
2.1.1	$8p - 20px$ **OR** $8p - 20xp$	✓A $8p$ ✓A $-20px$ or $-20xp$ (2)
2.1.2	$= -2(6x^2 - 4x + 9x - 6)$ $= -2(6x^2 + 5x - 6)$ $= -12x^2 - 10x + 12$ **OR** $= (-4x - 6)(3x - 2)$ $= -12x^2 + 8x - 18x + 12$ $= -12x^2 - 10x + 12$	✓A products ✓CA simplification ✓CA answer ✓A $(-4x - 6)$ ✓CA products ✓CA answer (3)
2.1.3	$= 16x^2 + 8x + 1 - 9x^2 + 1$ $= 7x^2 + 8x + 2$	✓A $16x^2 + 8x + 1$ ✓A $-9x^2 + 1$ ✓CA answer (3)
2.2	$= x^2(x-1) - 25(x-1)$ $= (x-1)(x^2 - 25)$ $= (x-1)(x-5)(x+5)$ OR $= -x^2(1-x) + 25(1-x)$ $= (1-x)(25 - x^2)$ $= (1-x)(5+x)(5-x)$	✓A $-(x-1)$ ✓A $(x-1)$ as a c.f. ✓CA answer ✓A $(1-x)$ ✓A $(25 - x^2)$ ✓CA answer (3)
		[11]

QUESTION 3

3.1.1	$x-3=\frac{18}{x}$ $\quad x\neq 0$ $x^2-3x-18=0$ $(x+3)(x-6)=0$ $x=-3$ *or* $x=6$	✓A std. form ✓CA factors ✓CA both x-values (3)
3.1.2	$-3\leq 2-x<0$ $-5\leq -x<-2$ $5\geq x>2$ $\therefore 2<x\leq 5$ ← not necessary if correct number line is drawn 	✓A subtracting 2 ✓CA answer ✓CA number line (3)
3.2	A father is twice as old as his son. Twelve years ago, the father was three times the son's age. How old is the son now? Period / Father / Son At Present / $2x$ / x 12 years ago / $2x-12$ / $x-12$ $2x-12=3(x-12)$ $2x-12=3x-36$ $x=24$ $\therefore$ His son is 24 years old.	✓A $2x$ & $2x-12$ ✓A x & $x-12$ ✓CA equation ✓CA answer (4)
3.3	$x^3+\frac{1}{x^3}=12$ and $x^2+\frac{1}{x^2}=7$. $x^3+\frac{1}{x^3}=\left(x+\frac{1}{x}\right)\left(x^2-1+\frac{1}{x^2}\right)$ $12=\left(x+\frac{1}{x}\right)(7-1)$ $x+\frac{1}{x}=2$ $\therefore x+\frac{1}{x}+3=5$	✓A $\left(x+\frac{1}{x}\right)\left(x^2-1+\frac{1}{x^2}\right)$ ✓A substitution ✓CA $x+\frac{1}{x}=2$ ✓CA answer (4)
		[14]

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QUESTION 4

4.1	Given: $f(x) = -x^2 + 4$	
4.1.1		✓A turning point ✓A x – intercepts ✓A shape (concave down) (3)
4.1.2	$y \leq 4$ **OR** $y \in (-\infty; 4]$	✓CA answer (1)
4.1.3	$-2 < x < 2$ **OR** $x \in (-2\ ;\ 2)$	✓CA interval ✓A notation (2)
4.1.4	$h(x) = -x^2 + 1$ $\therefore f$ is shifted or translated down by 3 units **ANSWER ONLY: FULL MARKS**	✓A $h(x) = -x^2 + 1$ ✓A down by 3 units (2)
4.2	$k(x) = \frac{a}{x} + 3$ $4 = \frac{a}{2} + 3$ $a = 2$ $\therefore k(x) = \frac{2}{x} + 3$	✓A $q = 3$ ✓A subst. a point (2;4) ✓CA answer (3)
		[11]

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QUESTION 5

5.1	$y=-x+2$	✓A $-x$ ✓A $+2$ (2)
5.2	$\frac{-2}{x}+2=-x+1$ $\frac{-2}{x}+1=-x$ $x^2+x-2=0$ $(x-1)(x+2)=0$ $x=1$ or $x=-2$ $y=0$ or $y=3$ $\therefore$ S(1;0) R(−2;3) **OR** $0=-x+1$ $x=1 \ \therefore$ S(1;0) $\frac{-2}{x}+2=-x+1$ $\frac{-2}{x}+1=-x$ $x^2+x-2=0$ $(x-1)(x+2)=0$ $x=1$ or $x=-2$ $y=0$ or $y=3$ $\therefore$ S(1;0) R(−2;3)	✓A equating ✓CA std. form ✓CA factors ✓CA values of x ✓CA coordinates of S ✓CA coordinates of R ✓A coordinates of S ✓A equating ✓CA std. form ✓CA factors ✓CA value of x_R ✓CA coordinates of R (6)
5.3	$g(-1)=4$ $f(-1)=2$ $\therefore$ DB = 2 units	✓A $g(-1)$ ✓A $f(-1)$ ✓CA answer (3)
		[11]

TOTAL: 50

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