FINAL

KWAZULU-NATAL PROVINCE

EDUCATION
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE

GRADE 10

MATHEMATICS P1

NOVEMBER 2025

MARKING GUIDELINE

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MARKS: 100

This marking guideline consists of 9 pages.

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QUESTION 1

1.1.1	$4x^2+6x-6x-9$ $4x^2-9$ Answer only; Award Full Marks	✓A products ✓A answer (2)
1.1.2	$-5x(4x^2-4x+1)+3$ $-20x^3+20x^2-5x+3$	✓A $4x^2-4x+1$ ✓CA $-20x^3+20x^2$ ✓CA $-5x+3$ (3)
1.1.3	$=\frac{2^{3x}.3^{3x}}{2^{3x}.3^{2x}.3^{x}}$ $=2^0\times3^0$ $=1$	✓A prime bases ✓CA simplification ✓CA answer (3)
1.2.1	$(2p+5)(p-3)$	✓A $(2p+5)$ ✓ A $(p-3)$ (2)
1.2.2	$=y-1+by-b$ $=(y-1)+b(y-1)$ $=(y-1)(1+b)$ **OR** $=y+by-b-1$ $=y(1+b)-(b+1)$ $=(1+b)(y-1)$	✓ A rearranging ✓ A factors ✓ A answer (3)
1.2.3	$5(m^3-8)$ $=5(m-2)(m^2+2m+4)$	✓A common factor ✓A $(m-2)$ ✓A (m^2+2m+4) (3)
1.3	$=\frac{(2010)(2013+3)(2013-3)\times2012}{2016\times(2011+1)(2011-1)}$ $=\frac{(2010)(2016)(2010)\times2012}{2016\times(2012)(2010)}$ $=2010$ Answer Only; 0/4 **OR**	✓A numerator (factors) ✓A denominator ✓A simplification ✓A answer

	let $2010 = x$ $\frac{x\left[(x+3)^2-9\right](x+2)}{(x+6)\left[(x+1)^2-1\right]}$ $= \frac{x(x+2)(x^2+6x)}{(x+6)(x^2+2x)}$ $= \frac{x.x(x+2)(x+6)}{x(x+6)(x+2)}$ $= x$ $= 2010$	✓A numerator (factors) ✓A denominator ✓A simplification ✓A answer (4)
		[20]

QUESTION 2

2.1.1	$2^{3x-4} = 2^{-9}$ $3x-4 = -9$ $x = -\frac{5}{3}$	✓A 2^{-9} ✓CA equating exp. ✓CA answer (3)
2.1.2	$\frac{4}{x-5} - \frac{10}{x} = \frac{2}{x(x-5)}$ $LCD = x(x-5)$ restrictions : $x \neq 0$ *or* $x \neq 5$ $4x-10(x-5) = 2$ $-6x = -48$ $x = 8$	✓A $x(x-5)$ ✓A restrictions $x \neq 0$ *or* $x \neq 5$ ✓A simplification ✓CA answer (4)
2.2	$x + y = 20$ .....(1) $20x + 12y = 320$ .....(2) $y = 20 - x$ .....(3) $20x + 12(20-x) = 320$ $20x + 240 - 12x = 320$ $8x = 80$ $x = 10$ $y = 10$	✓A Equation 1 ✓A Equation 2 ✓CA Equation 3 ✓CA substitution ✓CA x-value ✓CA y-value

	OR $x + y = 20$ .....(1) $20x + 12y = 320$ .....(2) $x = 20 - y$ .....(3) $20(20 - y) + 12y = 320$ $400 - 20y + 12y = 320$ $8y = 80$ $y = 10$ $x = 10$ $\therefore$ 10 adult tickets and 10 learner tickets were sold.	✓A Equation 1 ✓A Equation 2 ✓CA Equation 3 ✓CA substitution ✓CA x-value ✓CA y-value (6)
		[13]

QUESTION 3

3.1.1	$T_1 = 4$	✓A 4 (1)
3.1.2	$683 = 7n - 3$ $686 = 7n$ $n = 98$	✓A equating ✓CA simplification ✓CA answer ($n \in \mathbb{N}$) (3)
3.2.1	T	✓A answer (1)
3.2.2	$\frac{508}{5}$ $= 101,6$ $0,6 \times 5 = 3$ $\Rightarrow 3^{rd}$ *letter* $\therefore$ E **OR** $\frac{510}{5} \rightarrow (510$ *is divible by* $5)$ $= 102$ 510 *to* $508 = 3$ *steps backwards* $\Rightarrow 3^{rd}$ *letter* $\therefore$ E	✓A dividing by 5 ✓A remainder times 5 ✓A answer **OR** ✓A any number nearest to 508 & divisible by 5 *510 or 505* ✓A method (*backwards or forward*) ✓A answer (3)

3.2.3	$T_n = 5n - 3$ $T_{103} = 5(103) - 3$ $= 512$	✓A $5n-3$ ✓CA subst. $n = 103$ ✓CA answer (3)
3.3	$(-4k+1)(3d-2)$ $= [-4(62)+1][3(62)-2]$ $= -247 \times 184$ **Accept: $-45\,448$ as the final answer**	✓A✓A $(-4k+1)(3d-2)$ ✓CA substitution ✓CA answer (4)
		[15]

QUESTION 4

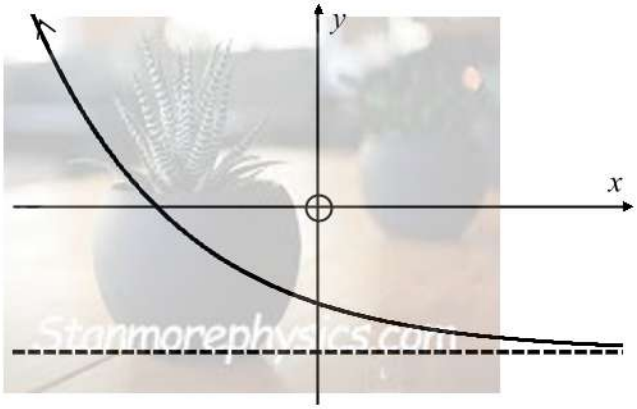
4.1	$A = P(1+i)^n$ $= 8000(1+0,055)^2$ $= R\,8904,20$ **OR** $A = P\left(1+\frac{r}{100}\right)^n$ $= 8000\left(1+\frac{5,5}{100}\right)^2$ $= R\,8904,20$	✓A subs. into correct formula ✓CA answer **OR** ✓A subs. into correct formula ✓CA answer (2)
4.2	$A = P(1+ni)$ $= 8000(1+2\times 0,06)$ $A = R\,8960$ $\therefore$ Option 1 or simple interest **OR** $A = P\left(1+\frac{nr}{100}\right)$ $= 8000\left(1+\frac{2\times 6}{100}\right)$ $A = R\,8960$ $\therefore$ Option 1 or simple interest	✓A subs. into correct formula ✓CA future value ✓CA answer **OR** ✓A subs. into correct formula ✓CA future value ✓CA answer (3)

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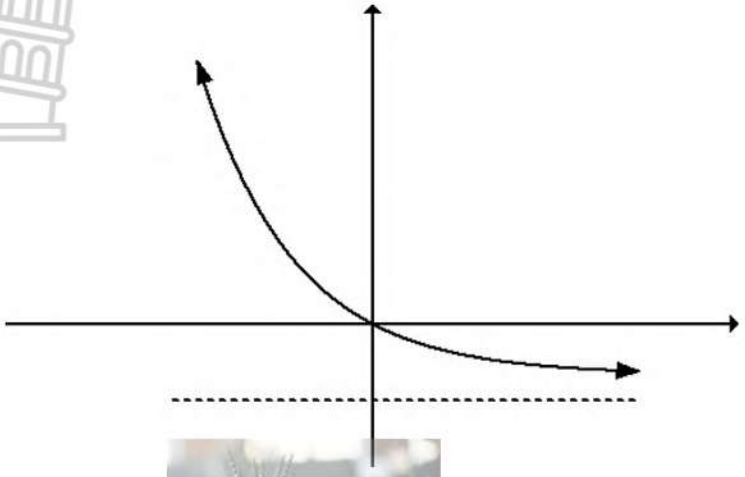
4.3	$\text{R}\,8960 \times \frac{£1}{\text{R}22{,}50}$ $= £398{,}22$	✓CA dividing by 22,5 ✓CA answer (2)
4.4	$A = P(1+ni)$ $9000 = P(1+2\times 0{,}06)$ $P = \text{R}\,8035{,}71$ $0/3$ if wrong formula used Fixed monthly payment $= \frac{8035{,}71}{24}$ $= \text{R}\,334{,}82$	✓ A value of P ✓ A dividing P by 24 ✓ CA answer (3)
		[10]

QUESTION 5

5.1.1 a)	$y = -1$	✓A $y = -1$ (1)
5.1.1 b)	$x = 0$	✓A $x = 0$ (1)
5.1.2	$0 = -2x - 1$ $x = -\frac{1}{2}$ $\text{B}\left(-\frac{1}{2};0\right)$ Answer only; Award Full marks	✓ A equating to 0 ✓ CA answer (**in coordinate form**) (2)
5.1.3	$0 = -\frac{2}{x} - 1$ $1 = -\frac{2}{x}$ $x = -2 \quad \text{A}(-2;0)$ $\text{AB} = -\frac{1}{2} + 2 = 1{,}5\,units$ **OR** $0 = -\frac{2}{x} - 1$ $1 = -\frac{2}{x}$ $x = -2 \quad \text{A}(-2;0)$ $\text{AB} = \sqrt{\left(-\frac{1}{2}+2\right)^2 + (0-0)^2}$ $= 1{,}5\,units$	✓ A $f(x) = 0$ ✓ CA x_A ✓ CA difference ✓ CA answer **OR** ✓ A $f(x) = 0$ ✓ CA x_A ✓ CA using the distance formula ✓ CA answer (4)

5.1.4	$-\frac{2}{x}-1=-2x-1$ $-\frac{2}{x}=-2x$ $x^2-1=0$ $(x+1)(x-1)=0$ $x=-1 \text{ or } x=1$ $y=1 \quad or \quad y=-3$ C(−1;1) D(1;−3)	✓A equating ✓ A std. form ✓ CA factors ✓ CA both values of x ✓ CA both values of y (5)
5.1.5 a)	$x \in \mathbb{R}\ ;\ x \neq 0$ **OR** $x>0 \quad \text{or} \quad x<0$ **OR** $x \in (-\infty\ ;\ 0) \text{ or } x \in (0\ ;\ \infty)$	✓A ✓A ✓A (1)
5.1.5b)	$x<-2 \quad or \quad -\frac{1}{2} \leq x < 0$ **OR** $x \in (-\infty;-2) \quad or \quad x \in \left[-\frac{1}{2};0\right)$	✓CA✓CA✓A (3) **OR** ✓CA✓CA✓A (3)
5.1.6	- Reflected about the y – axis or line $x = 0$. - Shifted or translated 3 units up.	✓A ✓A (2)
5.2		✓A shape (decreasing function) ✓A both intercepts with the axes < 0 ✓A horizontal asymptote < 0 (3)

OR

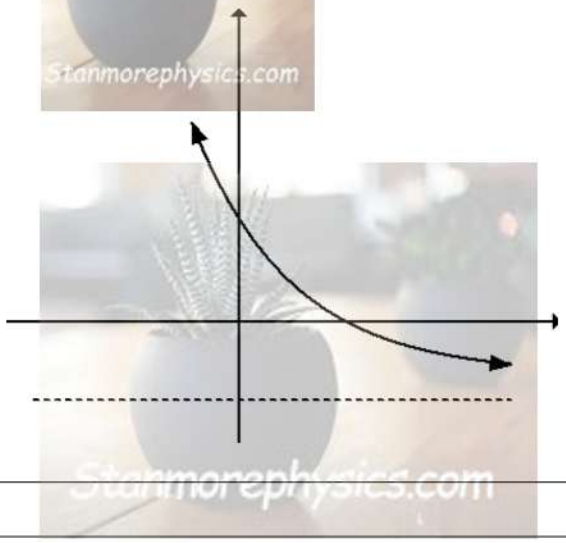


✓A shape (decreasing function)

✓A point of origin

✓A horizontal asymptote < 0

OR



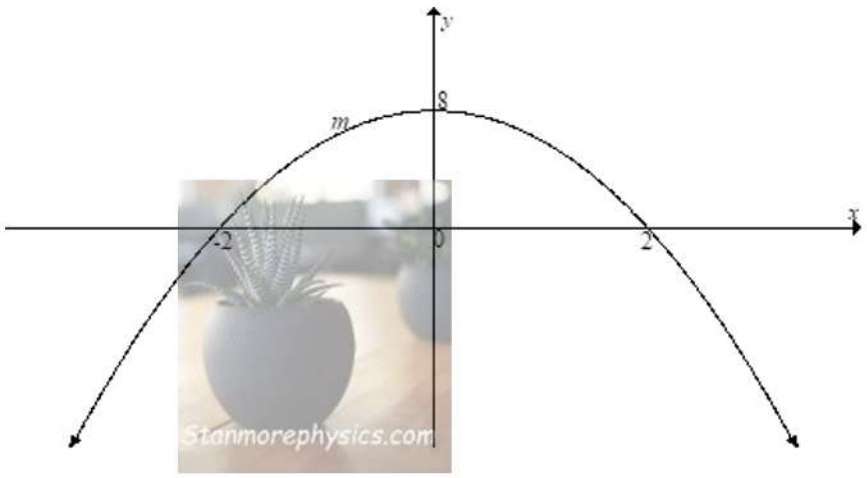
A shape (decreasing function)

✓A both intercepts with the axes

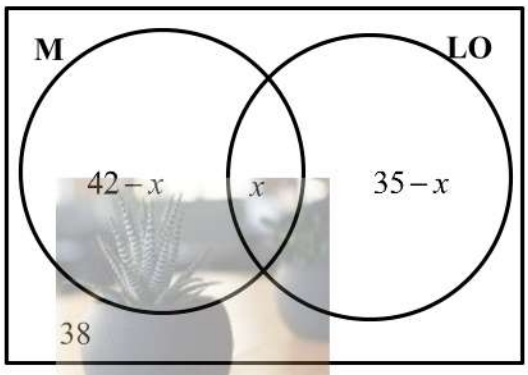
✓A horizontal asymptote < 0

[22]

QUESTION 6

6.1	$0 = -2x^2 + 8$ $0 = x^2 - 4$ $(x+2)(x-2) = 0$ $x = -2 \text{ or } x = 2$	✓A factors or square root on both sides ✓ A **(both values of *x*)** (2)
6.2	Stanmorephysics.com	✓ A turning point ✓ CA both x – intercepts ✓ A shape (concave down) (3)
6.3	$k > 8 \quad or \quad k \in (8;\infty)$	✓CA (from the graph in 6.2) (1)
6.4	$Max\,value\ of\ m = 8$ $8 - 5 = 3$ 3^3 ∴ The maximum value is 27.	✓A 3 ✓ A answer (2)
		[8]

QUESTION 7

7.1.1	$P(D \text{ and } K) = P(D) + P(K) - P(D \text{ or } K)$ $= 0,25 + 0,5 - 0,625$ $= 0,125$	✓A substitution ✓ CA answer (2)
7.1.2	No, - Events are not mutually exclusive / $P(A \text{ and } B) \neq 0$ **OR** - events are not exhaustive / $P(A) + P(B) = 1$	✓A ✓A reason (2)
7.2.1		✓A x on the intersection ✓A both $42 - x$ & $35 - x$ ✓A 38 (3)
7.2.2	$42 - x + x + 35 - x + 38 = 100$ $x = 15$	✓A equating ✓CA answer (2)
7.2.3	a) $\frac{38}{100}$ or $\frac{19}{50}$ **Accept: 0,38**	✓A (1)
	b) $\frac{62}{100}$ or $\frac{31}{50}$ **Accept: 0,62**	✓A (1)
	c) $\frac{27}{100}$ **Accept: 0,27**	✓A (1)
		[12]

TOTAL: 100 MARKS

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