



Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
Provinsie van die Oos Kaap: Departement van Onderwys
Porafensie Ya Kapa Botjhabela: Lefapha la Thuto

**NATIONAL
SENIOR CERTIFICATE/
NASIONALE SENIOR
SERTIFIKAAT**

GRADE/GRAAD 11

NOVEMBER 2025

**MATHEMATICS P1/WISKUNDE V1
MARKING GUIDELINE/NASIENRIGLYN**

MARKS/PUNTE: 150

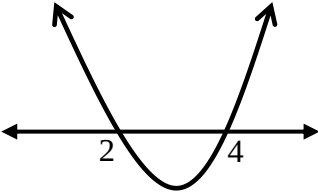
This marking guideline consists of 21 pages.
Hierdie nasienriglyn bestaan uit 21 bladsye.

NOTE/LET WEL:

- If a candidate answers a question TWICE, mark the FIRST attempt ONLY.
Indien 'n kandidaat 'n vraag TWEE keer beantwoord, merk SLEGS die EERSTE poging.
- Consistent accuracy applies in ALL aspects of the marking guideline.
Volgehoue akkuraatheid geld deurgaans in ALLE aspekte van die nasienriglyn.
- If a candidate crossed out an attempt of a question and did not redo the question, mark the crossed-out attempt.
Indien 'n kandidaat 'n poging vir 'n vraag deurgetrek het en nie die vraag weer beantwoord het nie, merk die poging wat deurgetrek is.
- The mark for substitution is awarded for substitution into the correct formula.
Die punt vir substitusie word toegeken vir substitusie in die korrekte formule.

QUESTION/VRAAG 1

1.1.1	$x(2x + 6) = 0$ $x = 0$ or/of $2x + 6 = 0$ $x = 0$ or/of $x = -3$	$\checkmark x = 0$ $\checkmark x = -3$ (2)
1.1.2	$4x^2 + 3x - 9 = 0$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $x = \frac{-3 \pm \sqrt{(3)^2 - 4(4)(-9)}}{2(4)}$ $x = \frac{-3 \pm \sqrt{153}}{8}$ $\therefore x = 1,17$ or / of $x = -1,92$	Penalise 1 mark for incorrect rounding off./ Penaliseer 1 punt vir verkeerde afronding. $\checkmark$ standard form / <i>standaardvorm</i> $\checkmark$ substitution / <i>vervanging</i> $\checkmark x = 1,17$ or/of $\checkmark x = -1,92$ (4)

1.1.3	$x(x-4)+2(4-x)>0$ $x(x-4)-2(x-4)>0$ $(x-4)(x-2)>0$ critical values / kritieke waardes $x = 4$ or / of $x = 2$  $x < 2$ or / of $x > 4$	✓ $-2(x-4)$ ✓ critical values / kritieke waardes ✓✓ $x < 2$ or $x > 4$ (accuracy / akkuraatheid) (4)
1.1.4 (a)	$x+14 \geq 0 ; x \neq -2$ $x \geq -14$	✓ $x \geq -14$ ✓ $x \neq -2$ (2)
(b)	$\frac{\sqrt{x+14}}{x+2} = 1$ $\sqrt{x+14} = x+2$ $x+14 = x^2 + 4x + 4$ $x^2 + 3x - 10 = 0$ $(x+5)(x-2) = 0$ $x \neq -5 \text{ or / of } x = 2$	✓ isolating surd / isoleer wortelvorm ✓ square both sides / kwadreer beide kante ✓ factors / faktore ✓ answer with choice / antwoord met keuse (-5 excluded / uitgesluit) (4)

1.2	$x - 3y = 1 \dots\dots\dots(1)$ $x^2 - 2xy + 9y^2 = 17 \dots\dots\dots(2)$ <i>From / Vanaf</i> (1): $x = 3y + 1 \dots\dots\dots(3)$ (3) into/in (2): $(3y + 1)^2 - 2y(3y + 1) + 9y^2 = 17$ $9y^2 + 6y + 1 - 6y^2 - 2y + 9y^2 - 17 = 0$ $12y^2 + 4y - 16 = 0$ $3y^2 + y - 4 = 0$ $(y - 1)(3y + 4) = 0$ $y = 1$ or/of $y = -\frac{4}{3}$ $x = 4$ or/of $x = -3$	✓ $x = 3y + 1$ ✓ substitution / <i>vervanging</i> ✓ standard form / <i>standaardvorm</i> ✓ factors / <i>faktore</i> ✓ y values / <i>y-waardes</i> ✓ x values / <i>x-waardes</i>
1.3	$1 + \frac{10}{1 + \frac{1}{1 + \frac{1}{x}}} = 7$ $1 + \frac{10}{1 + \frac{1}{\frac{x+1}{x}}} = 7$ $1 + \frac{10}{1 + \frac{x}{x+1}} = 7$ $1 + \frac{10}{\frac{x+1+x}{x+1}} = 7$ $1 + \frac{10}{\frac{2x+1}{x+1}} = 7$ $1 + \frac{10(x+1)}{2x+1} = 7$ $\frac{2x+1+10x+10}{2x+1} = 7$ $\frac{12x+11}{2x+1} = 7$ $12x+11 = 14x+7$ $2x = 4$ $x = 2$	✓ $\frac{1}{\frac{x+1}{x}}$ ✓ $\frac{x+1}{x}$ ✓ $\frac{2x+1}{x+1}$ ✓ $\frac{2x+1+10x+10}{2x+1}$ ✓ answer / <i>antwoord</i>

(6)

(5)

QUESTION/VRAAG 2

2.1	$\frac{125^x \cdot \sqrt{5^{4x-2}}}{\sqrt[3]{5^{12x+6}} \cdot 5^x}$ $= \frac{5^{3x} \cdot 5^{2x-1}}{5^{4x+2} \cdot 5^x}$ $= 5^{3x-x+2x-1-4x-2}$ $= 5^{-3}$ $= \frac{1}{125}$	✓ $125^x = 3^{3x}$ ✓ $\sqrt{5^{4x-2}} = 5^{2x-1}$ and/en ✓ $\sqrt[3]{5^{12x+6}} = 5^{4x+2}$ ✓ $5^{3x+2x-1-4x-2-x}$ ✓ answer / antwoord
2.2.1	$6x^{\frac{3}{2}} = 48$ $x^{\frac{3}{2}} = 8$ $x = (2^3)^{\frac{2}{3}}$ $x = 2^2$ $x = 4$	✓ dividing by 6 / deel deur 6 ✓ raising by reciprocal verhef tot omgekeerde/resiprook ✓ answer / antwoord
2.2.2	$\left(x^{\frac{1}{4}}\right)^2 - 3x^{\frac{1}{4}} + 2 = 0$ let/laat: $k = x^{\frac{1}{4}}$ $k^2 - 3k + 2 = 0$ $(k-2)(k-1) = 0 \quad \text{OR / OF} \quad \left(x^{\frac{1}{4}} - 2\right)\left(x^{\frac{1}{4}} - 1\right)$ $k = 2$ or/of $k = 1$ $x^{\frac{1}{4}} = 2$ or/of $x^{\frac{1}{4}} = 1$ $x = 16$ or/of $x = 1$	✓ $\left(x^{\frac{1}{4}}\right)^2$ ✓ factors / faktore ✓ $x^{\frac{1}{4}} = 2$ or/of $x^{\frac{1}{4}} = 1$ ✓ answers / antwoord

2.3	$A = L \times B$ $16^x - 100 = L \times (4^x + 10)$ $L = \frac{(4^x)^2 - 100}{4^x + 10}$ $L = \frac{(4^x - 10)(4^x + 10)}{4^x + 10}$ $L = 4^x - 10$ $\therefore \text{Length} = 4^x - 10$	✓ substitution into area formula <i>vervanging in oppervlakte formule</i> ✓ $16^x = (4^x)^2$ ✓ factors of difference of 2 squares <i>faktore van verskil tussen 2 kwadrate</i> ✓ answer / antwoord (4)
2.4	Smaller integer / <i>Kleiner heelgetal</i> = x next consecutive integer / <i>opeenvolgende heelgetal</i> = $x + 1$ Difference / <i>Verskil</i> : $(x + 1)^2 - x^2 = 45$ $x^2 + 2x + 1 - x^2 = 45$ $2x = 44$ $x = 22$ $\therefore (22 + 23)^2 = 2025$	✓ difference / <i>verskil</i> ✓ equating the difference to 45 <i>stel verskil gelyk aan 45</i> ✓ $x = 22$ ✓ $(\text{sum})^2 / (\text{som})^2 = 2025$ (4)
		[19]

QUESTION/VRAAG 3

3.1.1	$d = -0,5$ $4 ; 3,5$	✓ 4 ✓ 3,5 (2)
3.1.2	$T_n = -0,5n + 6$	✓ $-0,5n$ ✓ +6 (2)
3.1.3	$-\frac{1}{2}n + 6 < -113,5$ $-0,5n < 119,5$ $n > 239$ $n = 240$	✓ $-\frac{1}{2}n + 6 < -113,5$ ✓ answer / antwoord (2)
3.2.1	$d = 5$ $T_n = 5n + c$ but / maar: $T_{38} = 192$ $192 = 5(38) + c$ $c = 2$ $T_1 = 5(1) + 2 = 7$ $\therefore$ First term is 7 / Eerste term is 7	✓ $T_n = 5n + c$ ✓ substitution / vervanging ✓ answer / antwoord (3)
		[9]

QUESTION/VRAAG 4

4.1.1	$T_n = n^2 - 12n + k$ $3132 = (62)^2 - 12(62) + k$ $k = 32$	✓ substitution / <i>vervanging</i> ✓ answer / <i>antwoord</i> (2)
4.1.2	Terms of the quadratic number pattern: <i>Terme van die kwadratiese patroon:</i> $T_1 = (1)^2 - 12(1) + 32 = 21$ $T_2 = (2)^2 - 12(2) + 32 = 12$ $T_3 = (3)^2 - 12(3) + 32 = 5$ Terms of the first difference: <i>Terme van eerste verskille:</i> $-9 \quad ; \quad -7 \quad ; \quad -5$	✓ terms of quadratic number pattern / <i>terme van kwadratiese getalpatroon</i> ✓ answer / <i>antwoord</i> (2)
4.1.3	$T_n = n^2 - 12n + 32$ $n = \frac{-(-12)}{2(1)} = 6$	✓ method / <i>metode</i> ✓ answer / <i>antwoord</i> (2)
4.1.4	$T_{n-1} = (n-1)^2 - 12(n-1) + 32$ $= n^2 - 2n + 1 - 12n + 12 + 32$ $= n^2 - 14n + 45$	✓ simplification / <i>vereenvoudiging</i> ✓ answer / <i>antwoord</i> (2)

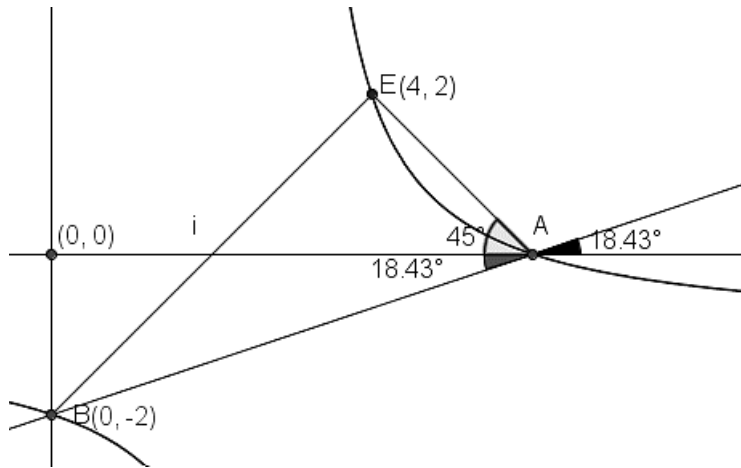
4.1.5	$T_n - T_{n-1} = 149$ $n^2 - 12n + 32 - n^2 + 14n - 45 = 149$ $149 = 2n - 13$ $n = 81$ consecutive terms are 80 and 81 / <i>opeenvolgende terme is 80 en 81</i> OR / OF $T_n = 2n - 11$ $149 = 2n - 11$ $160 = 2n$ $n = 80$ consecutive terms are 80 and 81 / <i>opeenvolgende terme is 80 en 81</i>	$\checkmark T_n - T_{n-1} = 149$ $\checkmark$ simplification / <i>vereenvoudiging</i> $\checkmark$ answer / <i>antwoord</i> (3) OR/OF $\checkmark T_n = 2n - 11$ $\checkmark$ equating T_n to 149 $\checkmark$ answer / <i>antwoord</i> (3)
4.2	$x \qquad 4 \qquad 3x \qquad 18$ $4 - x \qquad 3x - 4 \qquad 18 - 3x$ $4x - 8 \qquad -6x + 22$ $4x - 8 = -6x + 22$ $10x = 30$ $x = 3$ $\therefore T_3 = 9$	$\checkmark$ 2 nd diff i.t.o x / 2 ^{de} <i>versk. i.t.v x</i> $\checkmark$ equating / <i>gelykstelling</i> $\checkmark$ answer / <i>antwoord</i> (3)
		[14]

QUESTION/VRAAG 5

5.1	$p = -3$	✓ answer / antwoord (1)
5.2	$f(x) = \frac{a}{x-3} - 1$ Subst. / Vervang: (4;2) $2 = \frac{a}{4-3} - 1$ $a = 3$ $f(x) = \frac{3}{x-3} - 1$	✓ $f(x) = \frac{a}{x-3} - 1$ ✓ substitution of (4;2) / vervanging van (4;2) ✓ equation of f / vergelyking van f (3)
5.3	$g(x) = \frac{x}{3} + c$ $-1 = \frac{3}{3} + c$ $c = -2$ $\therefore B(0; -2)$ $0 = \frac{x}{3} - 2$ $2 = \frac{x}{3}$ $x = 6$ $\therefore A(6; 0)$ OR/OF $f(0) = -2$ $B(0; -2)$ $0 = \frac{3}{x-3} - 1$ $1 = \frac{3}{x-3}$ $x-3 = 3$ $x = 6$ $\therefore A(6; 0)$	 ✓ coordinates of B / koördinate van B ✓ $g(x) = 0$ ✓ coordinates of A / koördinate van A (3) OR/OF ✓ coordinates of B / koördinate van B ✓ $f(x) = 0$ ✓ coordinates of A / koördinate van A (3)

5.4	$-(x-4)+3=0$ $-x+4-3=0$ $-x+1=0$ $x-1=0$ V.A: $x=1$ Domain / Gebied: $x \in \mathbf{R}; x \neq 1$ OR / OF $h(x) = \frac{3}{-(x-4)-3} - 1$ $= \frac{3}{-x+4-3}$ $= \frac{3}{-(x-1)} - 1$ $= \frac{-3}{x-1} - 1$ Domain / Gebied: $x \in \mathbf{R}; x \neq 1$	✓ replacing x by $-(x-4)$ vervang x met $-(x-4)$ ✓ $x-1=0 \quad / \quad x=1$ ✓ answer / antwoord (3) OR/OF ✓ replacing x by $-(x-4)$ vervang x met $-(x-4)$ ✓ denominator / noemer: $(x-1)$ ✓ answer / antwoord (3)
5.5	$x > 3, x \neq 6$ OR / OF $3 < x < 6$ or/of $x > 6$	✓✓ answer / antwoord (2)

5.6.1



$$m_{AB} = \frac{1}{3}$$

$$\therefore \theta = 18,43^\circ$$

$$\therefore \hat{BOA} = 18,43^\circ \text{ (Vert. opp } \angle\text{'s / Regoorstaande } \angle\text{'e)}$$

$$m_{EA} = \frac{0-2}{6-4} = -1$$

$$\text{Ref. } \angle / \text{Verwys. } \angle : \hat{EAO} = 45^\circ$$

$$\therefore \hat{EAB} = 63,43^\circ$$

$$\begin{aligned} EA &= \sqrt{(4-6)^2 + (2-0)^2} \\ &= 2\sqrt{2} \end{aligned}$$

$$\begin{aligned} \text{Area of } \triangle ABE &= \frac{1}{2} \times EA \times AB \times \sin \hat{EAB} \\ &= \frac{1}{2} \times (2\sqrt{2}) \times (2\sqrt{10}) \sin 63,43^\circ \\ &= 8 \text{ units}^2 / \text{eenhede}^2 \end{aligned}$$

✓ m_{AB} and/en m_{EA}

✓ Length of EA / Lengte van EA

✓ $18,43^\circ$ and/en 45°

✓ substitution in the area formula /
vervanging in die oppervlakte
formule

✓ answer / antwoord

(5)

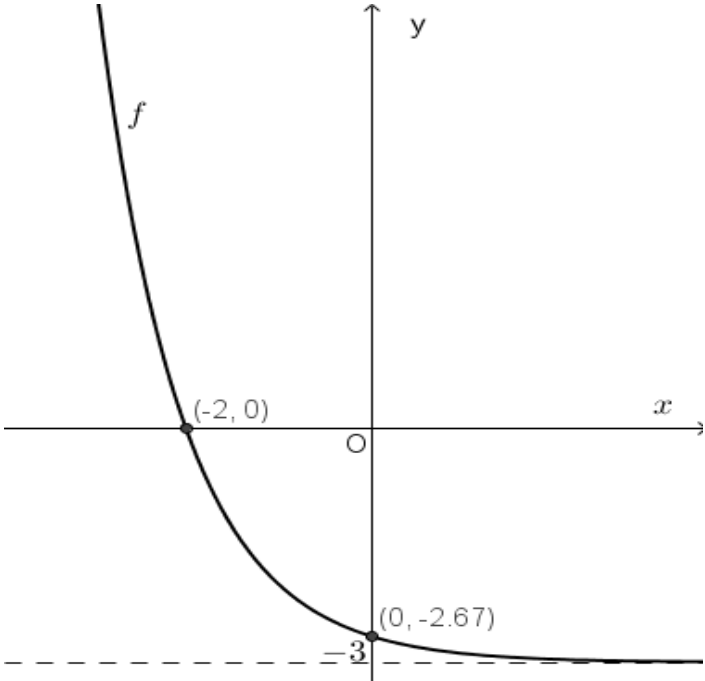
[17]

QUESTION/VRAAG 6

6.1	$a = -1$ $x = \frac{6}{-2} = -3$ $f(-3) = -(1)^2 - 6(-3) = 9$ $f(x) = -(x+3)^2 + 9$ OR / OF $f(x) = -x^2 - 6x$ $= -(x^2 + 6x)$ $= -(x^2 + 6x + (3)^2 - (3)^2)$ $= -((x+3)^2 - 9)$ $= -(x+3)^2 + 9$	✓ value of a / waarde van a ✓ $x = -3$ and / en $y = 9$ ✓ equation in T.P-form / Vergelyking in DP-vorm OR/OF ✓ common factor -1 / gemene faktor -1 ✓ completing the square $\pm (3)^2$ / voltooiing van vierkant $\pm (3)^2$ ✓ equation in T.P-form / vergelyking in DP-vorm (3)
6.2	$x_{TP} = -3$ $\frac{x_B + x_A}{2} = x_{TP}$ $\frac{-5 + x_A}{2} = -3$ $-6 = -5 + x_A$ $x_A = -1$ $f(-1) = -(-1)^2 - 6(-1) = 5$ $\therefore A(-1;5)$	✓ $x = -3$ ✓ $x_A = -1$ ✓ $f(-1)$ (3)

6.3	$g(x) = x^2 + 6x$ $CD = g(x) - f(x)$ $14 = x^2 + 6x - (-x^2 - 6x)$ $14 = 2x^2 + 12x$ $2x^2 + 12x - 14 = 0$ $x^2 + 6x - 7 = 0$ $(x + 7)(x - 1) = 0$ $x = -7$ or / of $x = 1$ $\therefore x = -7$ $\therefore OE = 7 \text{ units / eenhede}$	$\checkmark g(x)$ $\checkmark g(x) - f(x)$ $\checkmark$ standard form / <i>standaardvorm</i> $\checkmark$ both x - values / <i>beide x-waardes</i> $\checkmark$ answer / <i>antwoord</i> (5)
6.4.1	$k < -9$	$\checkmark\checkmark$ answer / <i>antwoord</i> (2)
6.4.2	$-x^2 - 6x = 0$ $x^2 + 6x = 0$ $x(x + 6) = 0$ $x = 0$ or / of $x = -6$ $\therefore -6 < k < 0$	$\checkmark$ x - values / <i>x-waardes</i> $\checkmark\checkmark$ answer / <i>antwoord</i> (3)
		[16]

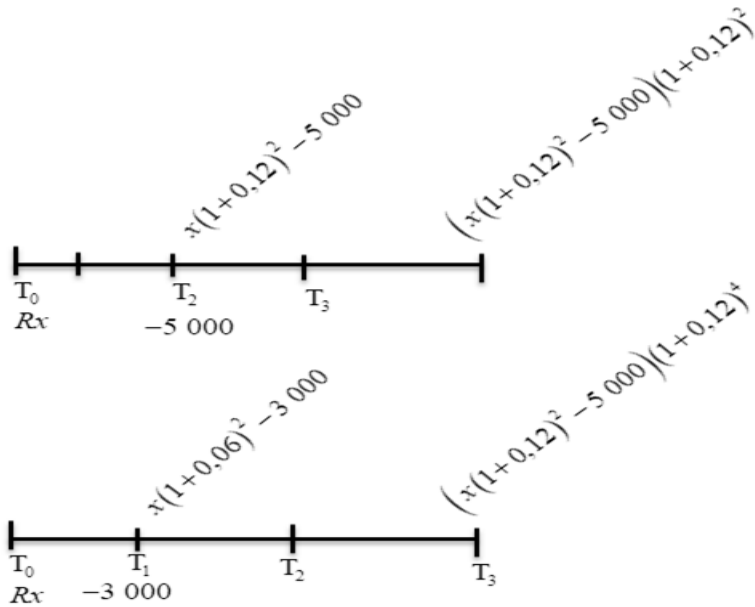
QUESTION/VRAAG 7

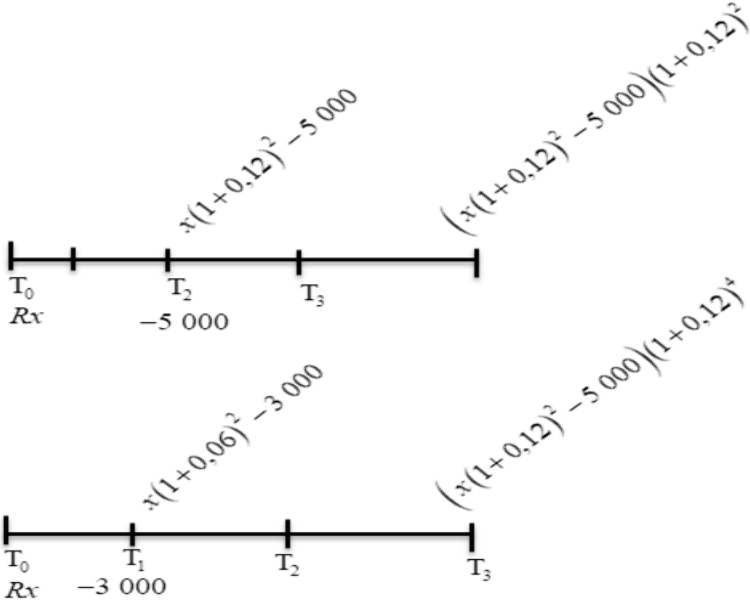
7.1.1	$y = -3$	✓ answer / antwoord (1)
7.1.2	$\left(\frac{1}{3}\right)^{x+1} - 3 = 0$ $3 = \left(\frac{1}{3}\right)^{x+1}$ $\left(\frac{1}{3}\right)^{-1} = \left(\frac{1}{3}\right)^{x+1} \quad OR / OF \quad 3^1 = 3^{-x-1}$ $x + 1 = -1$ $x = -2$ $y = \left(\frac{1}{3}\right)^{0+1} - 3$ $= -\frac{8}{3} \approx -2,7$	✓ $f(x) = 0$ ✓ $x = -2$ ✓ $y = -\frac{8}{3}$ (3)
7.1.3	 The graph shows a decreasing curve labeled f. It passes through the points $(-2, 0)$ and $(0, -2.67)$. A horizontal dashed line at $y = -3$ represents the asymptote. The x-axis and y-axis are shown, with the origin labeled O.	✓ shape / vorm ✓ x and y intercepts / <i>x- en y-afsnitte</i> ✓ asymptote / asimptoot

7.1.4	$x \leq -2$	✓✓ answer / antwoord (2)
7.2	$y = a.k^x + r$ $y = a.k^x - 2$ Subst./Vervang: (0 ; 0) $0 = a.k^0 - 2$ $2 = a$ $6 = 2k^2 - 2$ $8 = 2k^2$ $4 = k^2$ $k = \pm 2$ $\therefore k = 2 ; k > 0$ $h(x) = 2.2^x - 2$	✓ $y = a.k^x - 2$ ✓ $a = 2$ ✓ substitution of (2;6) / vervanging van (2;6) ✓ equation h / vergelyking h (4)
		[13]

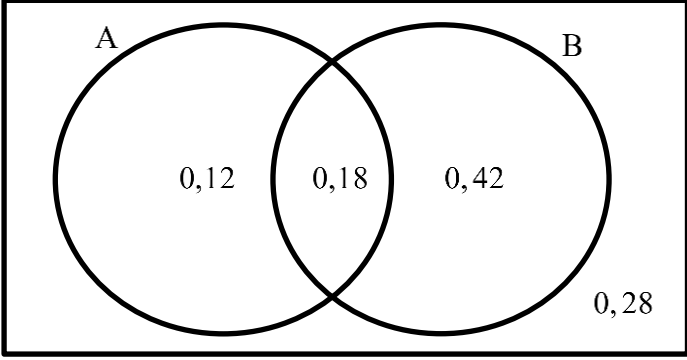
QUESTION/VRAAG 8

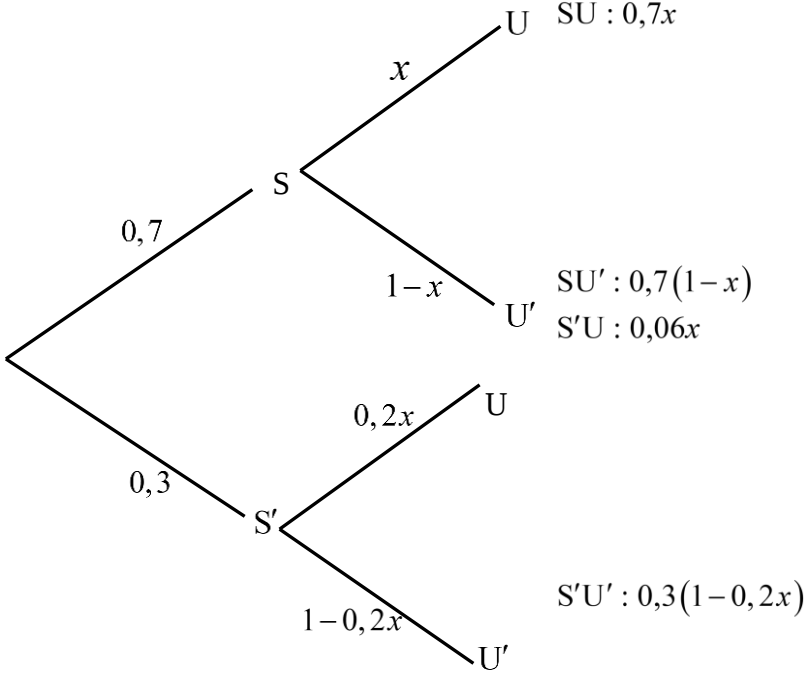
8.1	$A = P(1-i)^n$ $= 250\,000(1-13\%)^6$ $= R108\,406,55$	✓ $i = 6$ ✓ substitution / <i>vervanging</i> ✓ answer / <i>antwoord</i> (3)
8.2	$1 + 7,5\% = \left(1 + \frac{i_{nom}}{4}\right)^n$ $\sqrt[4]{\frac{43}{40}} = \left(1 + \frac{i_{nom}}{4}\right)$ $\sqrt[4]{\frac{43}{40}} - 1 = \frac{i_{nom}}{4}$ $i_{nom} = 4\left(\sqrt[4]{\frac{43}{40}} - 1\right)$ $i_{nom} = 0,07297.....$ $i_{rate} = 7,30\%$	✓ substitution / <i>vervanging</i> ✓ i_{nom} subject of equation / i_{nom} <i>onderwerp van formule</i> ✓ i_{rate} (3)
8.3	$A = \left(25\,000\left(1 + \frac{4\%}{12}\right)^{24} + 10\,000\right)\left(1 + \frac{7\%}{2}\right)^6 - 5000\left(1 + \frac{7\%}{2}\right)^2$ $A = R40\,222,91$ OR / OF $A = \left(\left(25\,000\left(1 + \frac{4\%}{12}\right)^{24} + 10000\right)\left(1 + \frac{7\%}{2}\right)^4 - 5000\right)\left(1 + \frac{7\%}{2}\right)^2$ $A = R40\,222,91$	✓ $n = 24 ; 6$ and / <i>en</i> 2 ✓ $25\,000\left(1 + \frac{4\%}{12}\right)^{24}$ ✓ $+10000$ to $25\,000\left(1 + \frac{4\%}{12}\right)^{24}$ ✓ subtracting 5000 with its interest / <i>afrekening van 5000 met rente</i> ✓ answer / <i>antwoord</i> (5) OR/OF ✓ $n = 24 ; 4$ and/en 2 ✓ $25\,000\left(1 + \frac{4\%}{12}\right)^{24}$ ✓ $+10000$ to $25\,000\left(1 + \frac{4\%}{12}\right)^{24}$ ✓ $P\left(1 + \frac{7\%}{2}\right)^2$ ✓ answer / <i>antwoord</i> (5)

8.4	Option 1 : annual compounding * Amount after 2 years: $x(1+0,12)^2$ * Brian pays 5 000, leaving : $x(1+0,12)^2 - 5\,000$ * Amount after another 2 years: $(x(1+0,12)^2 - 5\,000)(1+0,12)^2$ Option 2 : semi - annual compounding * Amount after 1 year: $x(1+0,06)^2$ * Brian pays 3 000, leaving : $x(1+0,06)^2 - 3\,000$ * Amount after another 2 years: $(x(1+0,06)^2 - 3\,000)(1+0,06)^4$ Times lines for both options 	✓ $x(1+0,12)^2 - 5\,000$ and/en $x(1+0,06)^2 - 3\,000$ ✓ $(x(1+0,12)^2 - 5\,000)(1+0,12)^2$ ✓ $(x(1+0,06)^2 - 3\,000)(1+0,06)^4$
	$(x(1+0,12)^2 - 5000)(1+0,12)^2 = (x(1+0,06)^2 - 3000)(1+0,06)^4$ $(x(1,12)^2 - 5000)(1,12)^2 = (x(1,06)^2 - 3000)(1,06)^4$ $x(1,12)^4 - 5000(1,12)^2 = x(1,06)^6 - 3000(1,06)^4$ $-5000(1,12)^2 + 3000(1,06)^4 = x(1,06)^6 - x(1,12)^4$ $-2484,56912 = -0,1550002477x$ $x = R16029,45$	✓ equating both options / gelykstel van opsies ✓ distribution by / uitbreiding $(1,12)^2$ and / en $(1,06)^2$ ✓ answer /antwoord (6)
		[17]

Opsie 1 : jaarliks saamgestel * Bedrag na 2 jaar: $x(1+0,12)^2$ * Brian betaal 5 000, dit laat: $x(1+0,12)^2 - 5\,000$ * Bedrag na 'n verdere 2 jaar: $(x(1+0,12)^2 - 5\,000)(1+0,12)^2$ Opsie 2 : half - jaarliks saamgestel * Bedrag na 1 jaar: $x(1+0,06)^2$ * Brian betaal 3 000, dit laat: $x(1+0,06)^2 - 3\,000$ * Bedrag na 'n verdere 2 jaar: $(x(1+0,06)^2 - 3\,000)(1+0,06)^4$ Tydlynne vir beide opsies: 	✓ $x(1+0,12)^2 - 5\,000$ and/en $x(1+0,06)^2 - 3\,000$ ✓ $(x(1+0,12)^2 - 5\,000)(1+0,12)^2$ ✓ $(x(1+0,06)^2 - 3\,000)(1+0,06)^4$
$(x(1+0,12)^2 - 5000)(1+0,12)^2 = (x(1+0,06)^2 - 3000)(1+0,06)^4$ $(x(1,12)^2 - 5000)(1,12)^2 = (x(1,06)^2 - 3000)(1,06)^4$ $x(1,12)^4 - 5000(1,12)^2 = x(1,06)^6 - 3000(1,06)^4$ $-5000(1,12)^2 + 3000(1,06)^4 = x(1,06)^6 - x(1,12)^4$ $-2484,56912 = -0,1550002477x$ $x = R16\,029,45$	✓ equating both options / gelykstel van opsies ✓ distribution by / uitbreiding $(1,12)^2$ and / en $(1,06)^2$ ✓ answer /antwoord
	(6) [17]

QUESTION/VRAAG 9

9.1.1	NO / NEE $P(A) \times P(B) = 0,3 \times 0,6$ $= 0,18$ $\therefore P(A \text{ and / en } B) = 0,18 \neq 0$	✓ NO / NEE ✓ valid reason / geldige rede (2)
9.1.2		✓ 0,18 ✓ 0,12 and/en 0,42 ✓ 0,28 (3)
9.1.3	$P(\text{not } A \text{ and not } B) = P[\text{not}(A \text{ or } B)] = 0,28$ $P(\text{nie } A \text{ en nie } B) = [\text{nie}(A \text{ of } B)] = 0,28$	✓✓ answer / antwoord (2)
9.2.1	$\frac{42}{106} = \frac{21}{53}$	✓ answer / antwoord (1)
9.2.2	$P(\text{Enjoy jogging/Geniet draf}) = \frac{56}{106}$ $P(\text{Male/Manlik}) = \frac{42}{106}$ $P(\text{Enjoy jogging/Geniet draf}) \times P(\text{Male/Manlik}) = \frac{56}{106} \times \frac{42}{106}$ $= 0,20932\dots$ $P(\text{Enjoy jogging and Male/Geniet draf en Manlik}) = \frac{26}{106}$ $= 0,24528\dots$ $\therefore P(\text{Enjoy jogging and Male/Geniet draf en Manlik})$ $\neq P(\text{Enjoy jogging/Geniet draf}) \times P(\text{Male/Manlik})$ $\therefore$ Events are not independent. / Gebeurtenisse is nie onafhanklik nie.	✓ $P(\text{Enjoy jogging}) \times P(\text{Male}) /$ $P(\text{Geniet draf}) \times P(\text{Manlik})$ ✓ answer / antwoord ✓ $P(\text{Enjoy jogging and Male}) /$ $P(\text{Geniet draf en Manlik})$ ✓ conclusion / slotsom (4)

9.3.1	Sunny / Sonnig - S Not Sunny / Nie Sonnig nie - S' Use Sunscreen / Gebruik Sonskerm - U Not using Sunscreen / Gebruik nie sonskerm nie - U' 	✓ First branches i.e. S and S' / Eerste takke dws S en S' ✓ Second branches i.e. U and U' / Tweede takke dws U en U' ✓ outcomes / uitkomst (3)
9.3.2	$0,7x + 0,06x = 0,62$ $0,76x = 0,62$ $x = 0,82$	✓ $0,7x + 0,06x$ ✓ $= 0,62$ ✓ answer / antwoord (3)
		[18]
		TOTAL / TOTAAL: 150