



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE/
*NASIONALE
SENIOR SERTIFIKAAT***

GRADE/GRAAD 11

NOVEMBER 2020

**MATHEMATICS P1/WISKUNDE VI
MARKING GUIDELINE/NASIENRIGLYN
EXEMPLAR/EKSEMPLAAR**

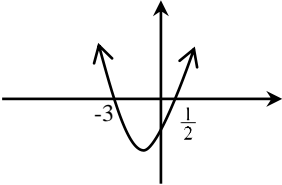
MARKS/PUNTE: 150

This marking guideline consists of 15 pages./
Hierdie nasienriglyn bestaan uit 15 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 1/VRAAG 1

1.1.1	$(3x+2)(x-5)=0$ $\therefore x = -\frac{2}{3}$ or / of $x = 5$	✓ ✓ answers / antwoorde (2)
1.1.2	$3x^2 - 5x - 1 = 0$ $\therefore x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $= \frac{-(-5) \pm \sqrt{(-5)^2 - 4(3)(-1)}}{2(3)}$ $= \frac{5 \pm \sqrt{37}}{6}$ $= -0,18$ or / of $1,85$	✓ substitution / vervanging ✓ ✓ answers / antwoorde (3)
1.1.3	$x = 4 - \sqrt{x-2}$ $\sqrt{x-2} = 4 - x$ $(x-2) = (4-x)^2$ $x-2 = 16 - 8x + x^2$ $x^2 - 9x + 18 = 0$ $(x-6)(x-3) = 0$ $\therefore x = 3$ or / of $x \neq 6$	✓ squaring both sides/ kwadreer beide kante ✓ standard form / standaardvorm ✓ factors / faktore ✓ both x-values / beide x-waardes ✓ selection / keuse (5)
1.1.4	$2x^2 + 5x \leq 3$ $2x^2 + 5x - 3 \leq 0$ $(2x-1)(x+3) \leq 0$ $\therefore -3 \leq x \leq \frac{1}{2}$	 ✓ standard form / standaardvorm ✓ factors / faktore ✓ ✓ $-3 \leq x \leq \frac{1}{2}$ (4)

1.2.1	$\left(\frac{8}{27}\right)^{\frac{2}{3}} = \left(\sqrt[3]{\frac{8}{27}}\right)^2$ $= \left(\frac{2}{3}\right)^2$ $= \frac{4}{9}$ <p style="text-align: center;">OR/OF</p> $\left[\left(\frac{2}{3}\right)^3\right]^{\frac{2}{3}}$ $= \left(\frac{2}{3}\right)^2$ $= \frac{4}{9}$	$\checkmark \left(\sqrt[3]{\frac{8}{27}}\right)^2$ <p>\checkmark answer / <i>antwoord</i></p> <p style="text-align: center;">OR/OF</p> $\checkmark \left[\left(\frac{2}{3}\right)^3\right]^{\frac{2}{3}}$ <p>\checkmark answer / <i>antwoord</i></p> <p style="text-align: right;">(2)</p>
1.2.2	$(\sqrt{12} + 2)(\sqrt{3} - 1) = (2\sqrt{3} + 2)(\sqrt{3} - 1)$ $= 2 \cdot 3 - 2\sqrt{3} + 2\sqrt{3} - 2$ $= 6 - 2$ $= 4$ <p style="text-align: center;">OR/OF</p> $(\sqrt{12} + 2)(\sqrt{3} - 1) = \sqrt{36} - \sqrt{12} + 2\sqrt{3} - 2$ $= 6 - 2\sqrt{3} + 2\sqrt{3} - 2$ $= 4$	$\checkmark 2\sqrt{3}$ $\checkmark 4 \cdot 3 - 2\sqrt{3} + 2\sqrt{3} - 2$ <p>\checkmark answer / <i>antwoord</i></p> <p style="text-align: right;">(3)</p> <p style="text-align: center;">OR/OF</p> $\checkmark \sqrt{36}$ $\checkmark 6 - 2\sqrt{3} + 2\sqrt{3} - 2$ <p>\checkmark answer / <i>antwoord</i></p> <p style="text-align: right;">(3)</p>

1.3	$5y - x = 2 \quad (1)$ $x^2 - 3xy + 4y = 4 \quad (2)$ $x = 5y - 2 \quad (3)$ <p>Subst./Vervang (3) into/in (2):</p> $\therefore (5y - 2)^2 - 3y(5y - 2) + 4y - 4 = 0$ $25y^2 - 20y + 4 - 15y^2 + 6y + 4y - 4 = 0$ $10y^2 - 10y = 0$ $10y(y - 1) = 0$ $\therefore y = 0 \quad \text{or / of} \quad y = 1$ $x = 5y - 2$ $x = 5(0) - 2 \quad \text{or / of} \quad x = 5(1) - 2$ $\therefore x = -2 \quad \text{or / of} \quad x = 3$ <p style="text-align: center;">OR / OF</p> $5y - x = 2 \quad (1)$ $x^2 - 3xy + 4y = 4 \quad (2)$ $y = \frac{x+2}{5} = \frac{1}{5}(x+2) \quad (3)$ <p>Subst./Vervang (3) into/in (2),</p> $x^2 - 3x\left(\frac{1}{5}(x+2)\right) + 4\left(\frac{1}{5}(x+2)\right) = 4$ $x^2 - \frac{3}{5}x(x+2) + \frac{4}{5}(x+2) = 4$ $5x^2 - 3x^2 - 6x + 4x + 8 - 20 = 0$ $2x^2 - 2x - 12 = 0$ $x^2 - x - 6 = 0$ $(x-3)(x+2) = 0$ $\therefore x = -2 \quad \text{or / of} \quad x = 3$ $y = \frac{1}{5}(-2+2) \quad \text{or / of} \quad y = \frac{1}{5}(3+2)$ $\therefore y = 0 \quad \text{or / of} \quad y = 1$	<p>✓ $x = 5x - 2$</p> <p>✓ substitution / vervanging</p> <p>✓ standard form / <i>standaardvorm</i></p> <p>✓ method;factors / <i>metode;faktore</i></p> <p>✓ both x-values / <i>beide x-waardes</i></p> <p>✓ both y-values / <i>beide y-waardes</i> (6)</p> <p>✓ $y = \frac{1}{5}(x+2)$</p> <p>✓ substitution / vervanging</p> <p>✓ standard form / <i>standaardvorm</i></p> <p>✓ factors / <i>faktore</i></p> <p>✓ both y-values / <i>beide y-waardes</i></p> <p>✓ both x-values / <i>beide x-waardes</i> (6)</p>
1.4.1	<p>Perimeter/Omtrek = $2l + 2b$</p> $280 = 2(2x) + 2y$ $2y = 280 - 4x$ $\therefore y = 140 - 2x$ <p>Area/Oppervlakte = lb</p> $= 2x \times y$ $= 2x(140 - 2x)$ $= 280x - 4x^2$	<p>✓ substitution / vervanging</p> <p>✓ simplification / <i>vereenvoudiging</i></p> <p>✓ $A = 2x(140 - 2x)$ (3)</p>

1.4.2	$A = 280x - 4x^2$ $= -4(x^2 - 70x)$ $= -4(x^2 - 70x + 1225 - 1225)$ $= -4[(x - 35)^2 - 1225]$ $= -4(x - 35)^2 + 4900$ $\therefore \text{The maximum area is } 4900 m^2$ <p><i>Die maksimum oppervlakte is 4900 m²</i></p> <p style="text-align: center;">OR/OF</p> $x = -\frac{b}{2a}$ $= \frac{-280}{2(-4)}$ $= 35 m$ $\therefore A = 280(35) - 4(35)$ $= 4900 m^2$	<p>✓ completing the square / <i>vierkantsvoltooiing</i></p> <p>✓ +4900</p> <p>✓ correct conclusion / <i>korrekte gevolgtrekking</i></p> <p style="text-align: right;">(3)</p> <p style="text-align: center;">OR/OF</p> <p>✓ method/metode</p> <p>✓ 35 m</p> <p>✓ answer / <i>antwoord</i></p> <p style="text-align: right;">(3)</p> <p style="text-align: right;">[31]</p>
-------	--	--

QUESTION 2/VRAAG 2

2.1	$\frac{3 \cdot 2^{x+1} - 2 \cdot 4^x}{3 \cdot 2^x - 2^{2x}} = \frac{3 \cdot 2^x \cdot 2 - 2 \cdot 2^{2x}}{3 \cdot 2^x - 2^{2x}}$ $= \frac{2 \cdot 2^x (3 - 2^x)}{2^x (3 - 2^x)}$ $= 2$	<p>✓ $3 \cdot 2^x \cdot 2 - 2 \cdot 2^{2x}$</p> <p>✓ factorisation of numerator / <i>faktorisering van teller</i></p> <p>✓ factorisation of denominator / <i>faktorisering van noemer</i></p> <p>✓ answer / <i>antwoord</i></p> <p style="text-align: right;">(4)</p>
2.2.1	$5x^{\frac{2}{5}} = 20$ $x^{\frac{2}{5}} = 4$ $\left(x^{\frac{2}{5}}\right)^{\frac{5}{2}} = 4^{\frac{5}{2}}$ $\therefore x = \left(2^2\right)^{\frac{5}{2}}$ $= 2^5$ $= 32$	<p>✓ $x^{\frac{2}{5}} = 4$</p> <p>✓ $\left(x^{\frac{2}{5}}\right)^{\frac{5}{2}} = 4^{\frac{5}{2}}$</p> <p>✓ answer / <i>antwoord</i></p> <p style="text-align: right;">(3)</p>

2.2.2	$12^x \cdot 3^{x+1} = 648$ $12^x \cdot 3^x \cdot 3 = 648$ $12^x \cdot 3^x = 216$ $(12 \cdot 3)^x = 216$ $36^x = 216$ $6^{2x} = 6^3$ $2x = 3$ $x = \frac{3}{2}$	$\checkmark 12^x \cdot 3^x = 216$ $\checkmark 6^{2x} = 6^3$ \checkmark equating exponents / <i>gelykstel van eksponente</i> \checkmark answer / <i>antwoord</i>
		(4)
2.3	$f(x) = \frac{3x-2}{x^2+10x+25}$ <i>f is undefined when : f is ongedefinieerd wanneer</i> $x^2+10x+25=0$ $(x+5)^2=0$ $x=-5$ $\therefore f$ is defined for : $x \in \mathbb{R}$, but $x \neq -5$ <i>f is gedefinieerd vir : $x \in \mathbb{R}$, maar $x \neq -5$</i>	$\checkmark x^2+10x+25=0$ for undefined / <i>vir ongedefinieerd</i> $\checkmark x=-5$ $\checkmark x \in \mathbb{R} \quad \checkmark x \neq -5$
		(4)
[15]		

QUESTION 3/VRAAG 3

3.1.1	$9; 5; 1; \dots; -143$ $T_n = 13 - 4n$	$\checkmark 13 \quad \checkmark -4n$
		(2)
3.1.2	$T_n = 13 - 4n$ $T_7 = 13 - 4(7)$ $= -15$	\checkmark substitution / <i>vervanging</i> $\checkmark -15$
		(2)
3.1.3	$T_n = 13 - 4n$ $-143 = 13 - 4n$ $-156 = -4n$ $\therefore n = 39$	\checkmark substitution / <i>vervanging</i> \checkmark answer / <i>antwoord</i>
		(2)

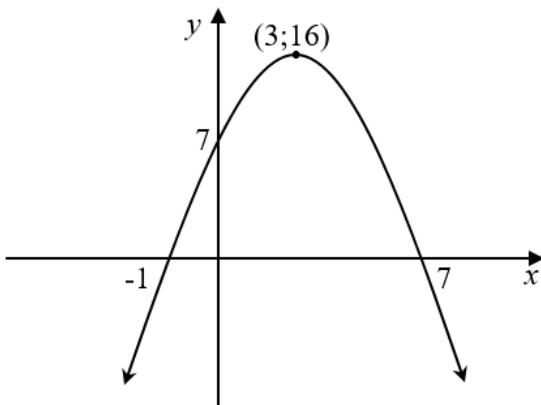
3.2	$T_n = an + b$ $16a + b = 38 \quad (1)$ $41a + b = 113 \quad (2)$ <hr/> $25a = 75$ $\therefore a = 3$ $16(3) + b = 38$ $48 + b = 38$ $\therefore b = -10$ $T_n = 3n - 10$ $-1 = 3n - 10$ $9 = 3n$ $\therefore n = 3$	$\checkmark 16a + b = 38$ and/en $41a + b = 113$ \checkmark method / <i>metode</i> $\checkmark T_n = 3n - 10$ $\checkmark n = 3$
		(4) [10]

QUESTION 4/VRAAG 4

4.1	<p>-12 ; -8 ; 0 ; 12</p> <p>28 ; 48</p>	$\checkmark 28 \quad \checkmark 48$
4.2	$2a = 4 \quad 3a + b = 4 \quad a + b + c = -12$ $\therefore a = 2 \quad 3(2) + b = 4 \quad 2 - 2 + c = -12$ $b = -2 \quad c = -12$ $\therefore T_n = 2n^2 - 2n - 12$	$\checkmark a = 2$ $\checkmark b = -2$ $\checkmark c = -12$ $\checkmark T_n = 2n^2 - 2n - 12$
		(4)

4.3	<p>For first differences: / <i>Vir eerste verskille</i> $4; 8; 12; \dots$</p> $T_n = 4n$ $192 = 4n$ $\therefore n = 48$ $\therefore 192 \text{ lies between } T_{48} \text{ and } T_{49}$ $192 \text{ lê tussen } T_{48} \text{ en } T_{49}$ <p style="text-align: center;">OR/OF</p> $T_{n+1} - T_n = 192$ $2(n+1)^2 - 2(n+1) - 12 - (2n^2 - 2n - 12) = 192$ $2(n^2 + 2n + 1) - 2n - 2 - 12 - 2n^2 + 2n + 12 = 192$ $2n^2 + 4n + 2 - 2n - 2 - 12 - 2n^2 + 2n + 12 = 192$ $\therefore 4n = 192$ $n = 48$ $\therefore 192 \text{ lies between } T_{48} \text{ and } T_{49}$ $192 \text{ lê tussen } T_{48} \text{ en } T_{49}$	$\checkmark T_n = 4n$ $\checkmark n = 48$ $\checkmark \text{ answer / antwoord}$ <p style="text-align: right;">(3)</p> <p style="text-align: center;">OR/OF</p> $\checkmark 2(n+1)^2 - 2(n+1) - 12 - (2n^2 - 2n - 12) = 192$ $\checkmark 4n = 192$ $\checkmark \text{ answer / antwoord}$ <p style="text-align: right;">(3)</p>
4.4	$P_n < 0 \Rightarrow T_n - 168 < 0$ $T_n < 168$ $2n^2 - 2n - 12 < 168$ $2n^2 - 2n - 180 < 0$ $n^2 - n - 90 < 0$ $(n-10)(n+9) < 0$ $-9 < n < 10$ <p>but / <i>maar</i>: $n > 0$</p> $\therefore \text{Number of terms} = 9$ $\text{Aantal terme} = 9$	$\checkmark 2n^2 - 2n - 12 < 168$ $\checkmark \text{ standard form / standaardvorm}$ $\checkmark \text{ factorisation / faktorisering}$ $\checkmark -9 < n < 10$ $\checkmark \text{ answer / antwoord}$ <p style="text-align: right;">(5)</p>
4.5	$T_n = 2n^2 - 2n - 12$ $= 2(n^2 - n - 6)$ $\therefore 2 \times \text{any } n > 0 \text{ is always even, so } T_n \text{ will always be even}$ $2 \times \text{enige } n > 0 \text{ is altyd ewe, so } T_n \text{ sal altyd ewe wees.}$	$\checkmark T_n = 2(n^2 - n - 6)$ $\checkmark \text{ explanation / verduideliking}$ <p style="text-align: right;">(2)</p> <p style="text-align: right;">[16]</p>

QUESTION 5/VRAAG 5

5.1	<p>At TP/By <i>Draaipunt</i>: $x = -\frac{b}{2a}$</p> $= -\frac{6}{2(-1)}$ $= 3$ $\therefore y = -(3)^2 + 6(3) + 7$ $= 16$ <p>OR/OF</p> $f(x) = -x^2 + 6x + 7$ $= -(x^2 - 6x - 7)$ $= -[(x^2 - 6x + 9) - 9 - 7]$ $= -[(x - 3)^2 - 16]$ $= -(x - 3)^2 + 16$ $\therefore \text{Turning point / } \textit{Draaipunt} : (3;16)$	<p>✓ method / <i>metode</i></p> <p>✓ x-coordinate / <i>x-koördinaat</i></p> <p>✓ y-coordinate / <i>y-koördinaat</i></p> <p>(3)</p> <p>✓ completing the square / <i>vierkantsvoltooiing</i></p> <p>✓ x-coordinate / <i>x-koördinaat</i></p> <p>✓ y-coordinate / <i>y-koördinaat</i></p> <p>(3)</p>
5.2	$-x^2 + 6x + 7 = 0$ $x^2 - 6x - 7 = 0$ $(x - 7)(x + 1) = 0$ $\therefore x = 7 \text{ or / of } x = -1$	<p>✓ $f(x) = 0$</p> <p>✓ answers / <i>antwoorde</i></p> <p>(2)</p>
5.3		<p>✓ y-intercept / <i>y-afsnit</i></p> <p>✓ x-intercepts / <i>x-afsnitte</i></p> <p>✓ turning point / <i>draaipunt</i></p> <p>✓ shape / <i>vorm</i></p> <p>(4)</p>
5.4	$x = 3$	<p>✓ answer / <i>antwoord</i></p> <p>(1)</p>

5.5	$f(x) = -x^2 + 6x + 7$ $f(-3) = -(-3)^2 + 6(-3) + 7$ $= -20$ $f(1) = -(1)^2 + 6(1) + 7$ $= 12$ <p>Average/Gemiddelde $m = \frac{12 - (-20)}{1 - (-3)}$</p> $= \frac{32}{4}$ $= 8$	<p>✓ $f(-3) = -20$</p> <p>✓ $f(1) = 12$</p> <p>✓ substituting into gradient formula / vervanging in gradiënt-formule</p> <p>✓ answer / antwoord</p> <p>(4)</p>
5.6	$f(x) = -x^2 + 6x + 7$ $= -(x-3)^2 + 16$ $\therefore h(x) = ((x-3)+4)^2 - 16$ $= (x+1)^2 - 16$	<p>✓ $a = 1$ and/en $q = -16$</p> <p>✓ $p = 1$</p> <p>(2)</p> <p>[16]</p>

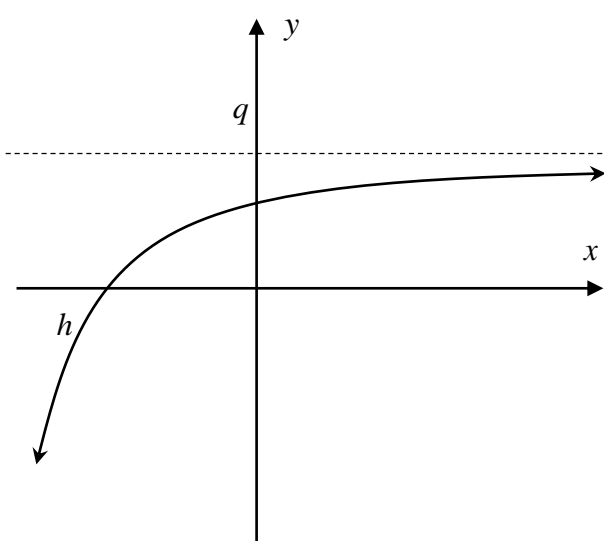
QUESTION 6/VRAAG 6

6.1	$f(x) = \frac{a}{x+p} + q$ $= \frac{a}{x+3} + 1$	<p>✓ $p = 3$ ✓ $q = 1$</p> <p>(2)</p>
6.2	$f(x) = \frac{a}{x+3} + 1$ $6 = \frac{a}{-2+3} + 1$ $\therefore a = 5$	<p>✓ substitution / vervanging</p> <p>✓ answer / antwoord</p> <p>(2)</p>

6.3	$f(x) = \frac{5}{x+3} + 1$ $0 = \frac{5}{x+3} + 1$ $-1 = \frac{5}{x+3}$ $-x-3 = 5$ $x = -8$ $\therefore A(-8;0)$	$\checkmark y = 0$ $\checkmark x = -8$	(2)
6.4	$A(-8;0) \text{ and/en } D(-3;1)$ $m_{AD} = \frac{y_2 - y_1}{x_2 - x_1}$ $= \frac{1-0}{-3-(-8)}$ $\therefore b = \frac{1}{5}$ $g(x) = bx + c$ $= \frac{1}{5}x + c$ $0 = \frac{1}{5}(-8) + c \quad \text{or / of} \quad 1 = \frac{1}{5}(-3) + c$ $\therefore c = \frac{8}{5}$ $g(x) = \frac{1}{5}x + \frac{8}{5}$	\checkmark substitution / <i>vervang</i> $\checkmark m_{AD}$ \checkmark substitution / <i>vervang</i> \checkmark equation / <i>vergelyking</i>	(4)
6.5	$x \in (-\infty; \infty) \text{ but / maar } x \neq -3$ OR / OF $x \in \mathbb{R}, x \neq -3$	$\checkmark x \in (-\infty; \infty) \quad \checkmark x \neq -3$ $\checkmark x \in \mathbb{R} \quad \checkmark x \neq -3$	(2) (2)
6.6	$f(x) = g(x)$ $\frac{5}{x+3} + 1 = \frac{1}{5}x + \frac{8}{5}$ $25 + 5(x+3) = x(x+3) + 8(x+3)$ $25 + 5x + 15 = x^2 + 3x + 8x + 24$ $x^2 + 6x - 16 = 0$ $(x+8)(x-2) = 0$ $x = -8 \text{ or } x = 2$ $y = \frac{5}{2+3} + 1$ $= 2$ $\therefore B(2;2)$	$\checkmark \frac{5}{x+3} + 1 = \frac{1}{5}x + \frac{8}{5}$ \checkmark standard form / <i>standaardvorm</i> \checkmark x-values / <i>x-waardes</i> \checkmark coordinates / <i>koördinate</i>	(4)

6.7	$-8 \leq x < -3$ or $x \geq 0$ OR / OF $x \in [-8; -3) \cup [0; \infty]$	$\checkmark \checkmark -8 \leq x < -3 \checkmark x \geq 0$ OR / OF $x \in [-8; -3) \checkmark \checkmark \cup [0; \infty] \checkmark$ (3) [19]
-----	---	---

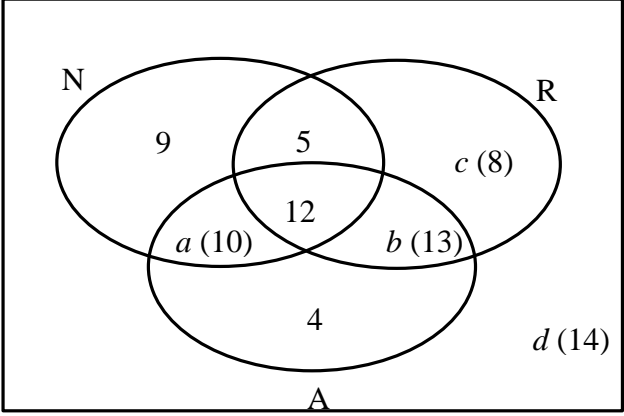
QUESTION 7/VRAAG 7

7.1.1	$y = -4$	\checkmark answer / <i>antwoord</i> (1)
7.1.2	$y \in (-4; \infty)$ OR / OF $y > -4$	\checkmark answer / <i>antwoord</i> (1) OR / OF \checkmark answer / <i>antwoord</i> (1)
7.1.3	$g(x) = \left(\frac{1}{2}\right)^x - 4$ $y = \left(\frac{1}{2}\right)^0 - 4$ $= -3$ $0 = \left(\frac{1}{2}\right)^x - 4$ $4 = \left(2^{-1}\right)^x$ $2^2 = 2^{-x}$ $\therefore 2 = -x$ $x = -2$ <p>Intercepts / <i>Afsnitte</i> : (0; -3) and / <i>en</i> (-2; 0)</p>	\checkmark y-value / <i>y-waarde</i> \checkmark substitution / <i>vervanging</i> \checkmark answer / <i>antwoord</i> (3)
7.1.4	$x > -2$	\checkmark answer / <i>antwoord</i> (1)
7.2		\checkmark asymptote above x-axis <i>asimptoot bo x-as</i> \checkmark y-intercept positive <i>y-afsnit positief</i> \checkmark shape / <i>vorm</i> (3) [9]

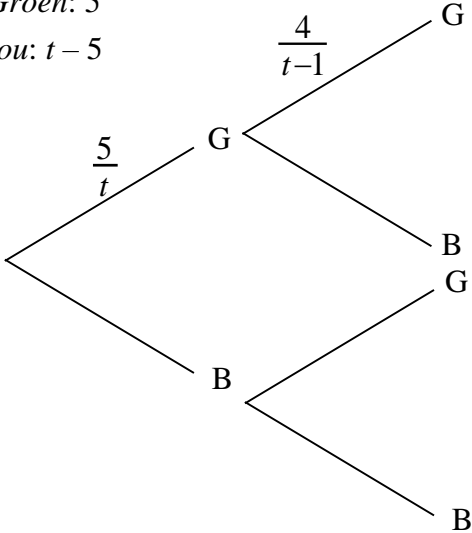
QUESTION 8/VRAAG 8

8.1	$i_{eff} = \left(1 + \frac{i_{nom}}{m}\right)^m - 1$ $= \left(1 + \frac{0,095}{12}\right)^{12} - 1$ $= 0,099247 \dots$ $\therefore r = 9,92\%$	✓ formula / <i>formule</i> ✓ substitution / <i>vervang</i> ✓ answer / <i>antwoord</i> (3)
8.2	$A = P(1+i)^n$ $R\,764\,050,60 = P(1+0,08)^5$ $P = \frac{764050,60}{(1+0,08)^5}$ $= R\,520\,000$	✓ $A = R\,764\,050,60$ ✓ substitution / <i>vervang</i> ✓ answer / <i>antwoord</i> (3)
8.3.1	$A = \left[28\,000\left(1 + \frac{0,075}{12}\right)^{48} - R\,7\,300\right]\left(1 + \frac{0,11}{4}\right)^{12}$ $= (R\,37\,760,78 - R\,7\,300)\left(1 + \frac{0,11}{4}\right)^{12}$ $= R\,30\,460,78\left(1 + \frac{0,11}{4}\right)^{12}$ $= R\,42\,181,59$	✓ $28000\left(1 + \frac{0,075}{12}\right)^{48}$ ✓ $-R\,7\,300$ ✓ $\times\left(1 + \frac{0,11}{4}\right)^{12}$ ✓ simplification / <i>vereenvoudiging</i> ✓ answer / <i>antwoord</i> (5)
8.3.2	$A = P(1+i)^n$ $A = R\,42\,181,59\left(1 + \frac{0,08}{12}\right)^{60}$ $= R\,62\,844,06$ $R\,80\,000 - R\,62\,844,06$ $= R\,17\,155,94$ $\therefore A = P(1+i)^n$ $R\,17\,155,94 = P\left(1 + \frac{0,08}{12}\right)^{60}$ $P = \frac{17155,94}{\left(1 + \frac{0,08}{12}\right)^{60}}$ $= R\,11\,515,25$ $\therefore \text{He needs to deposit R11 515 /}$ $\text{Hy moet R11 515 deponeer}$	✓ substitution into correct formula <i>vervang in korrekte formule</i> ✓ R62 844,06 ✓ R17 155,964 ✓ method / <i>metode</i> ✓ answer / <i>antwoord</i> (5) [16]

QUESTION 9/VRAAG 9

9.1	<p>If A and B are independent, then: <i>As A en B onafhanklik is, dan:</i> $P(A \text{ and/en } B) = P(A) \times P(B)$</p> $P(A) = 1 - P(\text{not/nie } A)$ $= 1 - 0,45$ $= 0,55$ $= \frac{11}{20}$ $P(A \text{ or/of } B) = P(A) + P(B) - P(A \text{ and/en } B)$ $0,685 = 0,55 + 0,3 - P(A \text{ and/en } B)$ $\therefore P(A \text{ and/en } B) = 0,165$ $= \frac{33}{200}$ $P(A) \times P(B) = 0,55 \times 0,3$ $= 0,165$ $= \frac{33}{200}$ <p>\therefore A and B are independent events. / <i>A en B is onafhanklike gebeurtenisse.</i></p>	<p>✓ 0,55</p> <p>✓ substitution / <i>vervang</i></p> <p>✓ answer / <i>antwoord</i></p> <p>✓ $P(A) \times P(B)$</p> <p>✓ conclusion / <i>gevolgtrekking</i></p> <p>(5)</p>
9.2.1	 <p>$a = 10$; $b = 13$; $c = 8$; $d = 14$</p>	<p>✓ $a = 10$</p> <p>✓ $b = 13$</p> <p>✓ $c = 8$</p> <p>✓ $d = 14$</p> <p>(4)</p>
9.2.2	$P(A \text{ or/of } (N \text{ and/en } R)) = \frac{39}{75} + \frac{5}{75}$ $= \frac{44}{75}$ $\approx 0,59$	<p>✓ $\frac{39}{75}$ ✓ $+\frac{5}{75}$</p> <p>✓ answer / <i>antwoord</i></p> <p>(3)</p> <p>[12]</p>

QUESTION 10/VRAAG 10

10	<p>Let the total number of balls be t. <i>Laat die totale aantal balle t wees.</i></p> <p>Green/Groen: 5 Blue/Blou: $t - 5$</p>  <p> $P(GG) = P(G) \times P(G)$ $\frac{5}{t} \times \frac{4}{t-1} = \frac{5}{18}$ $\frac{20}{t(t-1)} = \frac{5}{18}$ $5t^2 - 5t = 360$ $5t^2 - 5t - 360 = 0$ $t^2 - t - 72 = 0$ $(t-9)(t+8) = 0$ $\therefore t = 9 \text{ or } t \neq -8$ \therefore There are 9 balls. <i>Daar is 9 balle.</i> </p>	<p>✓ $\frac{5}{t}$ ✓ and/en $\frac{4}{t-1}$</p> <p>✓ equation / <i>vergelyking</i></p> <p>✓ standard form / <i>standaardvorm</i></p> <p>✓ factorisation / <i>faktorisering</i></p> <p>✓ $t = 9$</p> <p>(6)</p>
----	--	---

TOTAL / TOTAAL: 150