



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE/
NASIONALE
SENIOR SERTIFIKAAT**

GRADE/GRAAD 12

SEPTEMBER 2018

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

MARKS/PUNTE: 150

This marking guideline consists of 12 pages./
Hierdie nasienriglyn bestaan uit 12 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	$\frac{1}{2}x^2 - x - 4 = 0$ $x^2 - 2x - 8 = 0$ $(x - 4)(x + 2) = 0$ $x = 4 \text{ or/of } x = -2$	✓✓ factors/faktore ✓ x-values/waardes (3)
1.1.2	$-3(x^2 + 3x) + 7 = 0$ $-3x^2 - 9x + 7 = 0$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $x = \frac{-(-9) \pm \sqrt{(-9)^2 - 4(1)(7)}}{2(-3)}$ $x = 0,64 \text{ or/of } x = -3,64$	✓ standard form/standaardvorm ✓ substitution/substitusie ✓✓ x-values/waardes (4)
1.1.3	$2x^2 - 3x < 0$ $x(2x - 3) < 0$ $\begin{array}{c c c} + & - & + \\ \hline & 0 & \frac{3}{2} \end{array}$ $0 < x < \frac{3}{2}$	✓ $x(2x - 3)$ ✓ critical values/kritiese waardes ✓✓ $0 < x < \frac{3}{2}$ (4)

<p>1.2</p>	$x - 2y = 3 \dots\dots\dots(1)$ $4x^2 - 3 = -6y + 5xy\dots\dots\dots(2)$ <p>from (1)/vanaf (1) $x = 2y + 3$ sub into (2)/vervang in (2) $2(2y + 3)^2 - 3 = -6y + 5y(2y + 3)$ $4(4y^2 + 12y + 9) - 3 = -6y + 10y^2 + 15y$ $16y^2 + 48y + 36 - 3 = 10y^2 + 9y$ $6y^2 + 39y + 33 = 0$ $2y^2 + 13y + 11 = 0$ $(y + 1)(2y + 11) = 0$ $y = -1$ or $y = -\frac{11}{2}$</p> <p>$x = 1$ or/of $x = -8$</p>	<p>✓ $x = 2y + 3$</p> <p>✓ substitution/vervanging</p> <p>✓ standard form/standaardvorm</p> <p>✓ factors/faktore</p> <p>✓ y-values /y-waardes</p> <p>✓ x-values/x-waardes</p> <p style="text-align: right;">(6)</p>
<p>1.3</p>	$2x^2 - (k - 1)x + k - 3 = 0$ <p>$\Delta = b^2 - 4ac$ $\Delta = [-(k - 1)]^2 - 4(2)(k - 3)$ $\Delta = k^2 - 2k + 1 - 8k + 24$ $\Delta = k^2 - 10k + 25$ $\Delta = (k - 5)^2$</p> <p>$(k - 5)^2 \geq 0$</p> <p>∴ Roots are Real/Wortels is Reël</p>	<p>✓ $\Delta = [-(k - 1)]^2 - 4(2)(k - 3)$</p> <p>✓ $\Delta = k^2 - 2k + 1 - 8k + 24$</p> <p>✓ $\Delta = k^2 - 10k + 25$</p> <p>✓ $\Delta = (k - 5)^2$</p> <p>✓ $(k - 5)^2 \geq 0$</p> <p style="text-align: right;">(5)</p>
<p>1.4.1</p>	$3^{2m} = \frac{3p}{3-p}$ $3^{2m} = \frac{3(1,5)}{3 - 1,5}$ $3^{2m} = 3$ <p>∴ $2m = 1$</p> <p>∴ $m = \frac{1}{2}$</p>	<p>✓ sub. of/vervanging van $p = 1,5$</p> <p>✓ answer/antwoord</p> <p style="text-align: right;">(2)</p>
<p>1.4.2</p>	$3^{2m} = \frac{3p}{3-p}$ $3^{2(0)} = \frac{3p}{3-p}$ $1 = \frac{3p}{3-p}$ $3p = 3 - p$ $4p = 3$ <p>∴ $p = \frac{3}{4}$</p>	<p>✓ sub. of/vervanging van $m = 0$</p> <p>✓ answer/antwoord</p> <p style="text-align: right;">(2)</p>

QUESTION 2/VRAAG 2

2.1	$\frac{2x+2}{7x+1} = \frac{x-1}{2x+2}$ $(2x+2)^2 = (7x+1)(x-1)$ $4x^2 + 8x + 4 = 7x^2 - 6x - 1$ $3x^2 - 14x - 5 = 0$ $(3x+1)(x-5) = 0$ $x = -\frac{1}{3} \text{ or/of } x = 5$	$\checkmark \frac{T_2}{T_1} = \frac{T_3}{T_2}$ $\checkmark \text{ standard form/standaardvorm}$ $\checkmark \text{ factors/faktore}$ $\checkmark x = -\frac{1}{3}$ $\checkmark x = 5$ <p style="text-align: right;">(5)</p>
2.2	$25 ; 20 ; 16 ; \dots$ $a = 25 ; r = \frac{4}{5}$ $S_\infty = \frac{a}{1-r}$ $S_\infty = \frac{25}{1-\frac{4}{5}}$ $S_\infty = 125m$	$\checkmark r = \frac{4}{5}$ $\checkmark S_\infty = \frac{a}{1-r}$ $\checkmark \text{ substitution/vervanging}$ $\checkmark S_\infty = 125m$ <p style="text-align: right;">(4)</p>
2.3	$a = 2$ $l = 29$ $S_n = 155$ $S_n = \frac{n}{2}(a+l)$ $155 = \frac{n}{2}(2+29)$ $n = 10$ $29 = 2 + (10-1)d$ $9d = 27$ $d = 3$	$\checkmark \text{ sum formula of AS/}$ $\text{ som formule van RR}$ $\checkmark \text{ sub./vervanging van } a \text{ and/en } l$ $\checkmark n = 10$ $\checkmark \text{ sub./vervanging van } n = 10$ $\checkmark d = 3$ <p style="text-align: right;">(5) [14]</p>

QUESTION 3/VRAAG 3

3.	$2a = 4$ $a = 2$ $24 = 2 + b + c \dots\dots\dots(1)$ $24 = 50 + 5b + c \dots\dots\dots(2)$ $4b = -48 \quad (2) - (1)$ $b = -12$ $24 = 2 - 12 + c$ $c = 34$ $T_n = 2n^2 - 12n + 34$ <p>See alternative answers/ Kyk na alternatiewe antwoorde</p>	$\checkmark 2a = 4$ $\checkmark a = 2$ $\checkmark \text{ sub. into /vervang in } T_1$ $\checkmark \text{ sub. into /vervang in } T_5$ $\checkmark \text{ method of solving/metode van oplossing}$ $\checkmark b = -12$ $\checkmark \text{ sub. of /vervanging van } b$ $\checkmark c = 34$ <p style="text-align: right;">(8) [8]</p>
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QUESTION 4/VRAAG 4

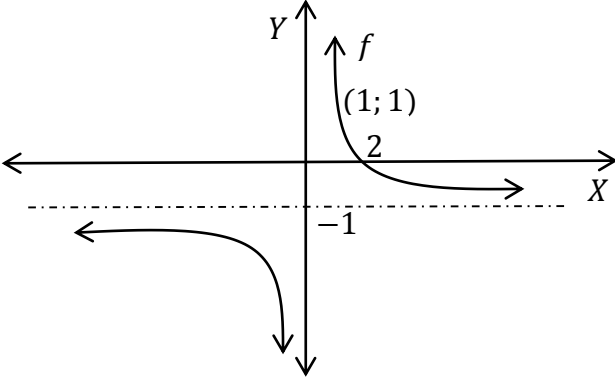
4.1	$36 = k^2$ $\therefore k = 6$	✓ sub of point/ <i>vervanging van punt</i> ✓ $k = 6$ (2)
4.2	$y = 6^x$ $x = 6^y$ $y = \log_6 x$	✓ swop of x and y . / <i>omruiling van x en y.</i> ✓ $y = \log_6 x$ (2)
4.3	$0 < x \leq 1$	✓✓ answer/ <i>antwoord</i> (2)
4.4	$y > 2$	✓✓ answer/ <i>antwoord</i> (2) [8]

QUESTION 5/VRAAG 5

5.1	$B(5; 0)$	✓✓ answer / <i>antwoord</i> (2)
5.2	$y = a(x - p)^2 + q$ $y = a\left(x - \frac{3}{2}\right)^2 + \frac{49}{4}$ $0 = a\left(5 - \frac{3}{2}\right)^2 + \frac{49}{4}$ $a = -1$ $y = -1\left(x - \frac{3}{2}\right)^2 + \frac{49}{4}$ $y = -1\left(x^2 - 3x + \frac{9}{4}\right) + \frac{49}{4}$ $y = -x^2 + 3x + 10$ <p style="text-align: center;">OR/OF</p> $y = a(x - 5)(x + 2)$ Inspection/ <i>Inspeksie</i> $\frac{49}{4} = a\left(\frac{3}{2} - 5\right)\left(\frac{3}{2} + 2\right)$ $a = -1$ $y = -1(x - 5)(x + 2)$ $y = -x^2 + 3x + 10$	✓ sub of turning point/ <i>vervanging van draaipunt</i> ✓ sub of point B/ <i>vervanging van punt B</i> ✓ $a = -1$ ✓ $y = -x^2 + 3x + 10$ (4) ✓ sub of x -intercepts/ <i>vervanging van x-afsnitte</i> ✓ sub of turning point/ <i>vervanging van draaipunt</i> ✓ $a = -1$ ✓ $y = -x^2 + 3x + 10$ (4)

5.3	$-x^2 + 3x + 10 = -x + 5$ $x^2 - 4x - 5 = 0$ $(x - 5)(x + 1) = 0$ $x = 5 \text{ or/of } x = -1$ $S(-1; 6)$	<ul style="list-style-type: none"> ✓ $f(x) = g(x)$ ✓ standard form/ standaardvorm ✓ factors/faktore ✓ $S(-1; 6)$ <p style="text-align: right;">(4)</p>
5.4.1	$-1 \leq x \leq 5$	<ul style="list-style-type: none"> ✓✓ answer/antwoord <p style="text-align: right;">(2)</p>
5.4.2	$-x^2 + 3x - 2,25 < 0$ $-x^2 + 3x + 10 < 2,25 + 10$ $\therefore f(x) < 12,25$ $x \in R ; x \neq 1,5$	<ul style="list-style-type: none"> ✓ $f(x) < 12,25$ ✓✓ $x \in R ; x \neq 1,5$ accuracy/akkuraatheid <p style="text-align: right;">(3)</p>

[15]**QUESTION 6/VRAAG 6**

6.1		<ul style="list-style-type: none"> ✓ asymptote/asimptoot ✓ x-intercept/x-afsnit ✓ shape/vorm ✓ other point/ander punt <p style="text-align: right;">(4)</p>
6.2	$f(x) = 2x^{-1} - 1$ $f'(x) = -2x^{-2}$	<ul style="list-style-type: none"> ✓ $f'(x) = -2x^{-2} - 1$ ✓ $f'(x) = -2x^{-2}$ <p style="text-align: right;">(2)</p>
6.3	$h(x) = -x - 1$	<ul style="list-style-type: none"> ✓✓ answer/antwoord <p style="text-align: right;">(2)</p>

<p>6.4</p>	$f'(x) = -\frac{2}{x^2} \text{ and/en } h(x) = -x - 1$ $-\frac{2}{x^2} = -1$ $x^2 = 2$ $x = \sqrt{2}; \quad x > 0$ $f(\sqrt{2}) = \frac{2}{\sqrt{2}} - 1$ <p>Equation of tangent/vergeelyking van raaklyn:</p> $y = -x + c$ $\frac{2}{\sqrt{2}} - 1 = -\sqrt{2} + c$ $c = -1 + 2\sqrt{2}$ $\therefore k = 2\sqrt{2}$	<ul style="list-style-type: none"> ✓ setting up of equation/ <i>opstel van vergeelyking</i> ✓ $x = \sqrt{2}$ ✓ $\frac{2}{\sqrt{2}} - 1$ ✓ sub of $(\sqrt{2}; \frac{2}{\sqrt{2}} - 1)$/ <i>vervanging van $(\sqrt{2}; \frac{2}{\sqrt{2}} - 1)$</i> ✓ $k = 2\sqrt{2}$ <p style="text-align: right;">(5) [13]</p>
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QUESTION 7/VRAAG 7

<p>7.1</p>	$2000 \left(1 + \frac{8}{1200}\right)^{12} = 2000 \left(1 + \frac{r}{200}\right)^2$ $\sqrt{\left(1 + \frac{8}{1200}\right)^{12}} = \left(1 + \frac{r}{200}\right)$ $r = 8,13\%$	<ul style="list-style-type: none"> ✓ $\frac{8}{1200}$ and/en $\frac{r}{200}$ ✓ $n = 12$ and/en $n = 2$ ✓ $r = 8,13\%$ <p style="text-align: right;">(3)</p>
<p>7.2</p>	$A = P(1 - i)^n$ $4\,500 = 9\,500(1 - 7,7\%)^n$ $n = \frac{\log \frac{4500}{9500}}{\log(1 - 7,7\%)}$ $n \approx 9,325$ <p>It will take 10 years/<i>Dit sal 10 jaar neem.</i></p>	<ul style="list-style-type: none"> ✓ correct formula/<i>korrekte formule</i> ✓ sub. of A and P/<i>vervanging van A en P</i> ✓ use of logs/<i>gebruik van logs</i> ✓ $n \approx 9,325$ ✓ 10 years/<i>10 jaar</i> <p style="text-align: right;">(5)</p>
<p>7.3.1</p>	$\frac{75}{100} \times 170\,500 = R127\,875$ <p style="text-align: center;">OR/ OF</p> $\frac{25}{100} \times 170\,500 = 42\,625$ <p>Loan/<i>lening</i> = 170 500 – 42 625 Loan/<i>lening</i> = R127 875</p>	<ul style="list-style-type: none"> ✓✓ answer/<i>antwoord</i> <p style="text-align: right;">(2)</p> <p style="text-align: center;">OR/OF</p> <ul style="list-style-type: none"> ✓ R 42 625 ✓ answer/<i>antwoord</i> <p style="text-align: right;">(2)</p>
<p>7.3.2</p>	$127\,875 = \frac{x \left[1 - \left(1 + \frac{13,2}{1200}\right)^{-60}\right]}{\frac{13,2}{1200}}$ $x = R\,2\,922,66$	<ul style="list-style-type: none"> ✓ $\frac{13,2}{1200}$ ✓ $n = 60$ ✓ sub of i, n and 127 875 into correct formula/<i>vervanging van i, n en 127 875 in die korrekte formule</i> ✓✓ answer/<i>antwoord</i> <p style="text-align: right;">(5) [15]</p>

QUESTION 8/VRAAG 8

8.1	$f(x) = x - 2x^2$ $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $= \lim_{h \rightarrow 0} \frac{(x+h) - 2(x+h)^2 - (x - 2x^2)}{h}$ $= \lim_{h \rightarrow 0} \frac{(x+h) - 2(x^2 + 2xh + h^2) - x + 2x^2}{h}$ $= \lim_{h \rightarrow 0} \frac{x+h - 2x^2 - 4xh - 2h^2 - x + 2x^2}{h}$ $= \lim_{h \rightarrow 0} \frac{-4xh - 2h^2 + h}{h}$ $= \lim_{h \rightarrow 0} \frac{h(-4x - 2h + 1)}{h}$ $= \lim_{h \rightarrow 0} (-4x - 2h + 1)$ $= -4x + 1$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Answer ONLY: 0 marks SLEGS antwoord: 0 punte </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Penalise 1 mark for incorrect use of formula. Must show $f'(x)$. Penaliseer 1 punt vir verkeerde gebruik van formule. Moet $f'(x)$ toon. </div>	<p>✓ formula/formule</p> <p>✓ substitution of/substitusie van $(x+h)$</p> <p>✓ simplification/vereenvoudiging</p> <p>✓ simplification to/vereenvoudiging na $(-4xh - 2h^2 + h)$</p> <p>✓ common factor/gemene faktor</p> <p>✓ answer/antwoord</p> <p style="text-align: right;">(6)</p>
8.2.1	$y = \frac{1}{9}x^{-3} + 9x$ $\frac{dy}{dx} = -\frac{1}{3}x^{-4} + 9$ <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> Penalise 1 mark for incorrect notation. Penaliseer 1 punt vir verkeerde notasie. </div>	<p>✓ $-\frac{1}{3}x^{-4}$</p> <p>✓ 9</p> <p style="text-align: right;">(2)</p>
8.2.2	$y = -\frac{1}{2x\sqrt{x}} + x^3$ $y = -\frac{1}{2x \cdot x^{\frac{1}{2}}} + x^3$ $y = -\frac{1}{2}x^{-\frac{3}{2}} + x^3$ $\frac{dy}{dx} = \frac{3}{4}x^{-\frac{5}{4}} + 3x^2$	<p>✓ $\sqrt{x} = x^{\frac{1}{2}}$</p> <p>✓ $-\frac{1}{2}x^{-\frac{3}{2}}$</p> <p>✓ $\frac{3}{4}x^{-\frac{5}{4}}$</p> <p>✓ $3x^2$</p> <p style="text-align: right;">(4) [12]</p>

QUESTION 9/VRAAG 9

<p>9.1</p>	$h(x) = x^3 - 9x^2 + 23x - 15.$ $h'(x) = 3x^2 - 18x + 23$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $x = \frac{-(-18) \pm \sqrt{(-18)^2 - 4(3)(23)}}{2(3)}$ $x = 4,15 \quad \text{or} \quad x = 1,85$ <p style="text-align: center;">of</p> $x = 1,85 \text{ at C/by C}$	$\checkmark h'(x) = 3x^2 - 18x + 23$ $\checkmark \text{ sub into formula/}$ $\text{vervang in formule}$ $\checkmark \text{ both } x \text{ values/}$ $\text{beide } x \text{ waardes}$ $\checkmark x = 1,85$ <p style="text-align: right;">(4)</p>
<p>9.2</p>	$h(x) = x^3 - 9x^2 + 23x - 15.$ $h(x) = (x - 1)(x^2 - 8x + 15)$ $h(x) = (x - 1)(x - 3)(x - 5)$ $\therefore F(5; 0)$	$\checkmark (x - 1)(x^2 - 8x + 15)$ $\checkmark (x - 1)(x - 3)(x - 5)$ $\checkmark \checkmark F(5; 0)$ <p style="text-align: right;">(4)</p>
<p>9.3</p>	$h(x) = x^3 - 9x^2 + 23x - 15.$ $h'(x) = 3x^2 - 18x + 23$ $h''(x) = 6x - 18$ $6x - 18 = 0$ $x = 3$ $\therefore k = 3$	$x = \frac{4,15 + 1,85}{2}$ $x = \frac{6}{2}$ $x = 3$ $\checkmark h''(x) = 6x - 18$ $\checkmark 6x - 18 = 0$ $\checkmark \therefore k = 3$ <p style="text-align: right;">(3)</p>
<p>9.4</p>	$h'(x) = 3x^2 - 18x + 23$ $h'(3) = 3(3)^2 - 18(3) + 23$ $h'(3) = -4$ $y = -4x + c$ $0 = -4(3) + c$ $c = 12$ $y = -4x + 12$	$\checkmark h'(3) = -4$ $\checkmark \text{ sub of point D/}$ $\text{vervanging van punt D}$ $\checkmark y = -4x + 12$ <p style="text-align: right;">(3)</p> <p style="text-align: right;">[14]</p>

QUESTION 10/VRAAG 10

10.1	$P = x \left(50 - \frac{1}{2}x \right) - \left(\frac{1}{4}x^2 + 35x + 25 \right)$ $P = 50x - \frac{1}{2}x^2 - \frac{1}{4}x^2 - 35x - 25$ $P = -\frac{3}{4}x^2 + 15x - 25$	$\checkmark x \left(50 - \frac{1}{2}x \right)$ $\checkmark \text{ subtracting total cost/}$ $\text{aftrekking van totale koste}$ <p style="text-align: right;">(2)</p>
10.2	$\frac{dP}{dx} = -\frac{3}{2}x + 15$ $-\frac{3}{2}x + 15 = 0$ $x = 10$	$\checkmark \frac{dP}{dx} = -\frac{3}{2}x + 15$ $\checkmark -\frac{3}{2}x + 15 = 0$ $\checkmark x = 10$ <p style="text-align: right;">(3)</p>
10.3	$C = \frac{\frac{1}{4}x^2 + 35x + 25}{x}$ $C = \frac{1}{4}x + 35 + 25x^{-1}$ $\frac{dC}{dx} = \frac{1}{4} - 25x^{-2}$ $\frac{1}{4} - 25x^{-2} = 0$ $\frac{25}{x^2} = \frac{1}{4}$ $x^2 = 100$ $x = 10$ $\therefore \text{Minimum /Minimum}$	$\checkmark C = \frac{\frac{1}{4}x^2 + 35x + 25}{x}$ $\checkmark C = \frac{1}{4}x + 35 + 25x^{-1}$ $\checkmark \frac{dC}{dx} = \frac{1}{4} - 25x^{-2}$ $\checkmark \frac{1}{4} - 25x^{-2} = 0$ $\checkmark x = 10$ <p style="text-align: right;">(5) [10]</p>

QUESTION 11/VRAAG 11

11.1.1	$P(M) = \frac{1200}{1600}$ $P(M) = \frac{3}{4} \text{ or/of } 0,75$	✓ answer/antwoord (1)
11.1.2	$P(\text{Fail}) = \frac{200}{1600}$ $P(\text{Fail}) = \frac{1}{8}$	✓ answer/antwoord (1)
11.1.3	$P(M) \times P(F) = \frac{3}{4} \times \frac{1}{8}$ $= \frac{3}{32}$ $\frac{3}{32} = \frac{A}{1600}$ $A = 150$	✓ $\frac{3}{4} \times \frac{1}{8}$ ✓ $\frac{3}{32}$ ✓ $\frac{3}{32} = \frac{A}{1600}$ (3)
11.1.4	$B = 1050$ $C = 50$ $D = 350$	✓ $B = 1050$ ✓ $C = 50$ ✓ $D = 350$ (3)
11.1.5	$P(F/F) = \frac{50}{1600}$ $P(F/F) = \frac{1}{32}$	✓ 50 ✓ 1600 (2)
11.2.1	$9! = 362880$	✓✓ answer/antwoord (2)
11.2.2	$4! \times 5! \times 6$ $= 17\,280$ <p>OR/OF</p> $6! \times 4! = 17280$	✓ $4! \times 5!$ ✓ $\times 6$ ✓ 17280 (3) [15]

TOTAL/TOTAAL: 150

ALTERNATIVE ANSWERS / ALTERNATIEWE ANTWOORDE

1.1.1	$\frac{1}{2}x^2 - x - 4 = 0$ $\left(\frac{1}{2}x + 1\right)(x - 4) = 0$ $x = -2 \text{ or/of } x = 4$ <p style="text-align: center;">OR/OF</p> $\frac{1}{2}x^2 - x - 4 = 0$ $\left(\frac{1}{2}x - 2\right)(x + 2) = 0$ $x = 4 \text{ or/of } x = -2$ <p style="text-align: center;">OR/OF</p> $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4\left(\frac{1}{2}\right)(-4)}}{2\left(\frac{1}{2}\right)}$ $x = 4 \text{ or/of } x = -2$	$\checkmark\checkmark$ factors/faktore \checkmark x-values/waardes (3) $\checkmark\checkmark$ factors/faktore \checkmark x-values/waardes (3) $\checkmark\checkmark$ sub into formula/ vervang in formule \checkmark x-values/waardes
3.1	$2a = 4$ $a = 2$ $T_3 = \text{axis of symmetry /simmetriese as}$ $T_n = a(n + p)^2 + q$ $T_n = 2(n + p)^2 + q$ $T_n = 2(n - 3)^2 + q$ $24 = 2(1 - 3)^2 + q$ $q = 16$ $T_n = 2(n - 3)^2 + 16$ $T_n = 2(n^2 - 6n + 9) + 16$ $T_n = 2n^2 - 12n + 34$	$\checkmark 2a = 4$ $\checkmark a = 2$ $\checkmark T_n = 2(n + p)^2 + q$ $\checkmark T_n = 2(n - 3)^2 + q$ $\checkmark 24 = 2(1 - 3)^2 + q$ $\checkmark q = 16$ $\checkmark T_n = 2(n^2 - 6n + 9) + 16$ $\checkmark T_n = 2n^2 - 12n + 34$ (8)
5.4.2	$-x^2 + 3x - \frac{9}{4} < 0$ $x^2 - 3x + \frac{9}{4} > 0$ $4x^2 - 12x + 9 > 0$ $(2x - 3)(2x - 3) > 0$ $\therefore x \in R ; x \neq \frac{3}{2}$	\checkmark factors/faktore $\checkmark\checkmark$ answer/antwoord (3)