



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

**SENIOR CERTIFICATE EXAMINATIONS/
NATIONAL SENIOR CERTIFICATE EXAMINATIONS/
*SENIORSERTIFIKAAT-EKSAMEN/
NASIONALE SENIORSERTIFIKAAT-EKSAMEN***

MATHEMATICS P1/*WISKUNDE V1*

MAY/JUNE/*MEI/JUNIE* 2025

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

**These marking guidelines consist of 15 pages.
*Hierdie nasienriglyne bestaan uit 15 bladsye.***

NOTE:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- Consistent Accuracy applies in all aspects of the marking guidelines.

LET WEL:

- Indien 'n kandidaat 'n vraag TWEE keer beantwoord, sien slegs die EERSTE poging na.
- Volgehoue akkuraatheid is DEURGAANS op ALLE aspekte van die nasienriglyne van toepassing.

QUESTION 1/VRAAG 1

1.1.1	$x^2 - 3x - 10 = 0$ $(x + 2)(x - 5) = 0$ $x = -2$ or $x = 5$	✓ factors/formula ✓ answer ✓ answer (3)
1.1.2	$3x^2 + 6x + 1 = 0$ $x = \frac{-(6) \pm \sqrt{(6)^2 - 4(3)(1)}}{2(3)}$ $x = -1,82$ or $x = -0,18$	✓ correct substitution into correct formula ✓ answer ✓ answer (3)
1.1.3	$2^{x+4} + 2^x = 8704$ $2^x(16 + 1) = 8704$ $2^x = 512$ OR/OF $2^x = 512$ $= 2^9$ $x = 9$ OR $x = \log_2 512 = 9$	✓ factorisation ✓ simplify to exponential eq ✓ answer (3)
1.1.4	$(x - 8)(x + 2) \leq 0$ CV: $x = 8$ or $x = -2$ $\therefore -2 \leq x \leq 8$ OR/OF $x \in [-2; 8]$	✓ critical values ✓✓ answer (3)
1.1.5	$x + 3\sqrt{x + 2} = 2$ $3\sqrt{x + 2} = 2 - x$ $9(x + 2) = 4 - 4x + x^2$ $x^2 - 13x - 14 = 0$ $(x - 14)(x + 1) = 0$ $x \neq 14$ or $x = -1$	✓ isolating the surd ✓ squaring both sides(method) ✓ standard form ✓ answer with selection (4)

1.2	$(y-3)(x+2) = 32$ $yx + 2y - 3x - 6 = 32 \quad \dots(1)$ $2(y-3) + 2(x+2) = 24$ $y + x - 1 = 12$ $y = 13 - x \quad \dots(2)$ $(13-x)x + 2(13-x) - 3x - 6 = 32$ $13x - x^2 + 26 - 2x - 3x - 6 - 32 = 0$ $-x^2 + 8x - 12 = 0$ $x^2 - 8x + 12 = 0$ $(x-6)(x-2) = 0$ $x = 6 \quad \text{or} \quad x = 2$ $y = 13 - 6 \quad \text{or} \quad y = 13 - 2$ $y = 7 \quad \quad \quad y = 11$ OR/OF $(y-3)(x+2) = 32$ $yx + 2y - 3x - 6 = 32 \quad \dots(1)$ $2(y-3) + 2(x+2) = 24$ $y + x - 1 = 12$ $x = 13 - y \quad \dots(2)$ $y(13-y) + 2y - 3(13-y) - 6 = 32$ $13y - y^2 + 2y - 39 + 3y - 6 - 32 = 0$ $-y^2 + 18y - 77 = 0$ $y^2 - 18y + 77 = 0$ $(y-7)(y-11) = 0$ $y = 7 \quad \text{or} \quad y = 11$ $x = 13 - 7 \quad \text{or} \quad x = 13 - 11$ $x = 6 \quad \quad \quad x = 2$	✓ setting up eq 1 (Area) ✓ setting up eq 2 (Perimeter) ✓ substitution ✓ standard form ✓ x-values ✓ y-values (6) OR/OF ✓ setting up eq 1 (Area) ✓ setting up eq 2 (Perimeter) ✓ substitution ✓ standard form ✓ y-values ✓ x-values (6)
1.3	$(1+x^m+x^{-n})^2 - (1-x^m-x^{-n})^2$ $= [1+x^m+x^{-n} - (1-x^m-x^{-n})][1+x^m+x^{-n} + (1-x^m-x^{-n})]$ $= (2)(2x^m+2x^{-n})$ OR/OF $(1+x^m+x^{-n})^2 = 1+x^m+x^{-n}+x^m+x^{2m}+x^{m-n}+x^{-n}+x^{m-n}+x^{-2n}$ $= 1+2x^m+2x^{-n}+2x^{m-n}+x^{2m}+x^{-2n}$ $(1-x^m-x^{-n})^2 = 1-2x^m-2x^{-n}+2x^{m-n}+x^{2m}+x^{-2n}$ $(1+x^m+x^{-n})^2 - (1-x^m-x^{-n})^2 = 4x^m+4x^{-n}$ $= 4(x^m+x^{-n})$ $= (2)(2x^m+2x^{-n})$	✓ factorisation ✓ 2 ✓ $(2x^m+2x^{-n})$ (3) OR/OF ✓ expansion ✓ 4 ✓ (x^m+x^{-n}) (3)
		[25]

QUESTION/VRAAG 2

2.1.1	$T_n = 2n + 3$	✓ $2n$ ✓ 3 (2)
2.1.2	$93 = 2n + 3$ $90 = 2n$ $45 = n$	✓equating ✓answer (2)
2.1.3	$50 + 70 + 90 + \dots + 930$ $S_{45} = \frac{45}{2}[2(50) + (45 - 1)(20)]$ $S_{45} = R22\,050$ Total raised = R22 050 OR/OF $50 + 70 + 90 + \dots + 930$ $S_{45} = \frac{45}{2}[50 + 930]$ $S_{45} = R22\,050$ Total raised = R22 050 OR/OF $5 + 7 + 9 + \dots + 93$ $S_{45} = \frac{45}{2}[2(5) + (45 - 1)(2)]$ $S_{45} = 2\,205\text{km}$ $S_{45} = R22\,050$ Total raised = R22 050 OR/OF $5 + 7 + 9 + \dots + 93$ $S_{45} = \frac{45}{2}[5 + 93]$ $S_{45} = 2\,205\text{km}$ $S_{45} = R22\,050$ Total raised = R22 050	✓convert to money ✓substitution ✓answer (3) OR/OF ✓convert to money ✓substitution ✓answer (3) OR/OF ✓substitution ✓answer ✓convert to money (3) OR/OF ✓substitution ✓answer ✓convert to money (3)
2.2.1 a)	$T_1 = (2)^{1+2}$ $T_1 = 8$	✓ $a = 8$ (1)
2.2.1 b)	$r = 2$	✓ $r = 2$ (1)
2.2.2	$T_{20} = (2)^{20+2}$ $T_{20} = 2^{22} = (2^2)^{11}$ $= 4^{11}$	✓substitution ✓answer (2)

2.2.3	$\frac{1}{8} + \frac{1}{16} + \frac{1}{32} + \dots$ $S_{\infty} = \frac{a}{1-r}$ $= \frac{\frac{1}{8}}{1 - \frac{1}{2}}$ $\therefore S_{\infty} = \frac{1}{4}$	✓ series ✓ substitution ✓ answer (3)
2.2.4	$8 + 4^2 + 32 + 4^3 + \dots + 4^{11} + \dots$ $S_{21} - S_{10} = \frac{8(2^{21} - 1)}{2 - 1} - \frac{16(4^{10} - 1)}{4 - 1}$ $= 16\,777\,208 - 5\,592\,400$ $= 11\,184\,808$ OR/OF $8 + 32 + 128 + \dots$ $S_{11} = \frac{8(4^{11} - 1)}{4 - 1}$ $\therefore S_{11} = 11\,184\,808$	✓ $\frac{8(2^{21} - 1)}{2 - 1}$ ✓ $n = 10$ ✓ $\frac{16(4^{10} - 1)}{4 - 1}$ ✓ 11 184 808 OR/OF ✓ $n = 11$ ✓ $r = 4$ ✓ $\frac{8(4^{11} - 1)}{4 - 1}$ ✓ 11 184 808 (4)
		[18]

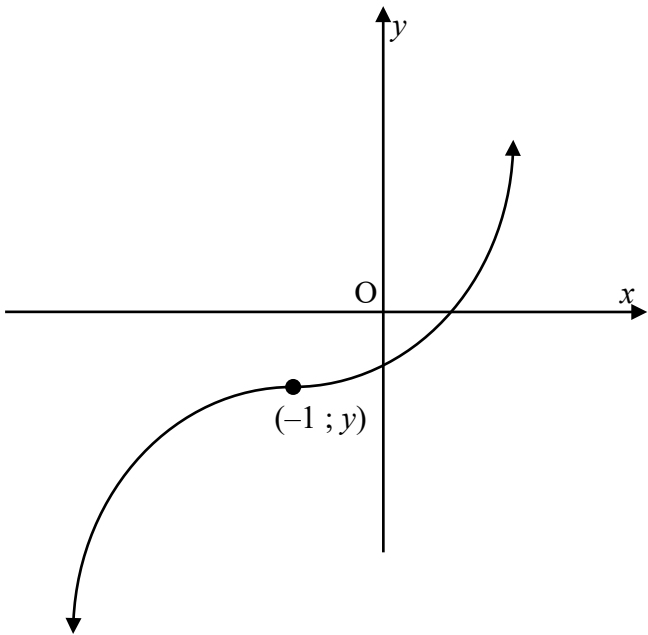
QUESTION/VRAAG 3

3.1	$ \begin{array}{ccccccc} 14 & ; & 9 & ; & 6 & ; & 5 & ; & \dots \\ & \swarrow & \searrow & \swarrow & \searrow & \swarrow & \searrow & & \\ & -5 & & -3 & & -1 & & & \\ & \swarrow & \searrow & \swarrow & \searrow & & & & \\ & 2 & & 2 & & & & & \end{array} $ $ \begin{array}{lcl} 2a = 2 & 3(1) + b = -5 & 1 - 8 + c = 14 \\ a = 1 & b = -8 & c = 21 \\ \therefore T_n = n^2 - 8n + 21 \end{array} $	$ \begin{array}{l} \checkmark 2a = 2 \\ \checkmark 3(1) + b = -5 \\ \checkmark 1 - 8 + c = 14 \end{array} $ (3)
3.2	$ \begin{array}{l} T_n = -5 + (n-1)(2) \\ T_n = 2n - 7 \\ 2n - 7 = 33 \\ \therefore n = 20 \\ \therefore T_{21} = (21)^2 - 8(21) + 21 \\ T_{21} = 294 \end{array} $ OR/OF $ \begin{array}{l} \therefore T_{n+1} - T_n = (n+1)^2 - 8(n+1) + 21 - n^2 + 8n - 21 \\ n^2 + 2n + 1 - 8n - 8 + 21 - n^2 + 8n - 21 = 33 \\ 2n - 7 = 33 \\ \therefore n = 20 \\ \therefore T_{21} = (21)^2 - 8(21) + 21 \\ T_{21} = 294 \end{array} $	$ \begin{array}{l} \checkmark \text{general term} \\ \checkmark \text{equating to } 33 \\ \\ \checkmark \text{answer} \end{array} $ (3) OR/OF $ \begin{array}{l} \checkmark T_{n+1} - T_n \\ \checkmark \text{equating to } 33 \\ \\ \checkmark \text{answer} \end{array} $ (3)
3.3	$ \begin{array}{l} T_7 = T_1 = 14 \\ \therefore 14 + m \geq 0 \\ m \geq -14 \\ \text{And } T_6 = T_2 \\ \therefore 9 + m < 0 \\ m < -9 \\ \therefore -14 \leq m < -9 \end{array} $	$ \begin{array}{l} \checkmark -14 \\ \\ \checkmark -9 \\ \checkmark -14 \leq m < -9 \end{array} $ (3)
		[9]

QUESTION/VRAAG 4

4.1	M(3 ; 4)	$\checkmark x = 3$ $\checkmark y = 4$ (2)
4.2	$f(x) = \frac{4}{x-3} + 4$ $y = \frac{4}{0-3} + 4 = \frac{8}{3}$ $\therefore D\left(0; \frac{8}{3}\right)$	$\checkmark x = 0$ $\checkmark y\text{-value}$ (2)
4.3	M(3 ; 4) $y = x + t$ OR/OF $y = (x + p) + q$ $4 = 3 + t$ $y = x - 3 + 4$ $t = 1$ $y = x + 1$ $\therefore t = 1$	$\checkmark$ substituting M $\checkmark$ value of t (2)
4.4	$\frac{4}{x-3} + 4 = 0$ $-4(x-3) = 4$ $x-3 = -1$ $x = 2$ C(2 ; 0) $\therefore 2 \leq x < 3$	$\checkmark y = 0$ $\checkmark x = 2$ $\checkmark\checkmark$ answer (4)
4.5	$\frac{4}{x-3} + 4 = x + 1$ $\frac{4}{x-3} = x - 3$ $4 = (x-3)^2$ $\pm 2 = x - 3$ $\therefore x = 5 \quad \text{or} \quad x = 1$ $\therefore A(5 ; 6)$ OR/OF Point closest to the origin in $y = \frac{a}{x}$ is $(\sqrt{a}; \sqrt{a})$ By translation: $A(\sqrt{a} + 3; \sqrt{a} + 4)$ $A(5 ; 6)$	$\checkmark$ equating $\checkmark x_A \quad \checkmark y_A$ (3) OR/OF $\checkmark$ translation $\checkmark x_A \quad \checkmark y_A$ (3)
4.6	$h(x) = \frac{-4}{x+3} + 4$ $= \frac{4}{-x-3} + 4$ $\therefore$ Reflection in y – axis. $A'(-5; 6)$ $AA' = 10$	$\checkmark$ coordinates $\checkmark$ distance (2)
		[15]

QUESTION/VRAAG 5

5.1	$y = a(x+1)^2 + 4$ $-4 = a(-3+1)^2 + 4$ $-8 = 4a$ $-2 = a$ $y = -2(x+1)^2 + 4$ $y = -2x^2 - 4x + 2$	✓ substitute $(-1 ; 4)$ ✓ substitute $(-3 ; -4)$ ✓ $-8 = 4a$
5.2	$k < -4$	✓✓ $k < -4$ (2)
5.3		✓ point of inflection ✓ change of concavity at $x = -1$ ✓ y-intercept below x-axis ✓ increasing curve (4)
		[9]

QUESTION/VRAAG 6

6.1	$(0 ; -3) \quad -3 = p^0 + q \quad \text{OR} \quad y = p^x - 4$ $q = -4$ $(3 ; 4) \quad 4 = p^3 - 4$ $p^3 = 8$ $p = 2$ $\therefore f(x) = 2^x - 4$	✓ substitute $(0 ; -3)$ ✓ answer for q ✓ substitute $(3 ; 4)$ ✓ answer for p (4)
6.2	$y > -4 \quad \text{OR/OF} \quad y \in (-4 ; \infty)$	✓ answer (1)
6.3	$g(x) = mx + c$ $E(-3 ; 0)$ $m = \frac{4-0}{3-(-3)} = \frac{2}{3}$ $y = \frac{2}{3}x + c$ $0 = \frac{2}{3}(-3) + c \quad \text{OR} \quad y - 0 = \frac{2}{3}(x + 3)$ $\therefore c = 2$ $y = \frac{2}{3}x + 2 \quad y = \frac{2}{3}x + 2$ OR/OF For g^{-1} : $y = mx - 3$ $3 = m(4) - 3$ $m = \frac{3}{2}$ $\therefore g^{-1}(x) = \frac{3}{2}x - 3$ For g : $2x + 6 = 3y$ $\frac{2}{3}x + 2 = y$ $\therefore y = \frac{2}{3}x + 2$	✓ $E(-3 ; 0)$ ✓ m_{AE} ✓ substitution ✓ equation (4) OR/OF ✓ substitution of $(4 ; 3)$ ✓ m of inverse ✓ equation of g^{-1} ✓ equation of g (4)
6.4	$g(x) = \frac{2}{3}x + 2$ $x = \frac{2}{3}y + 2$ $g^{-1}(x) = \frac{3}{2}x - 3$	✓ swop x and y ✓ equation (2)
		[11]

QUESTION/VRAAG 7

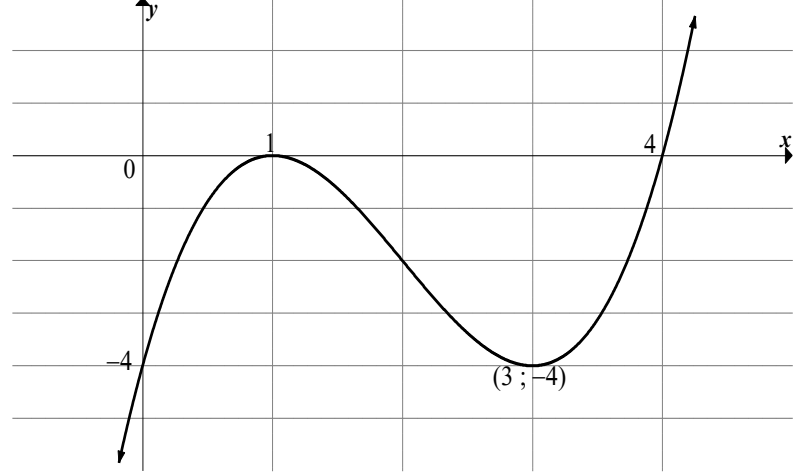
7.1	$(1+i) = \left(1 + \frac{15}{1200}\right)^{12}$ $i = 16,08\%$	✓ substitution into correct formula ✓ answer (2)
7.2	$P = \frac{x[1 - (1+i)^{-n}]}{i}$ $500\,000 = \frac{11\,250 \left[1 - \left(1 + \frac{0,06}{4}\right)^{-n}\right]}{\frac{0,06}{4}}$ $\frac{2}{3} = 1 - \left(1 + \frac{0,06}{4}\right)^{-n}$ $(1,015)^{-n} = \frac{1}{3}$ $-n = \log_{1,015} \left(\frac{1}{3}\right)$ $n = 73,788\dots$ $\therefore n = 73 \text{ withdrawals}$	✓ $i = \frac{0,06}{4}$ ✓ substitution into correct formula ✓ correct use of logs ✓ answer for n ✓ final answer (5)
7.3	$A = P(1+i)^n$ $= 12\,000 \left(1 + \frac{0,095}{12}\right)^{12 \times 4}$ $= R\,17\,521,17895\dots$ $F = \frac{x[(1+i)^n - 1]}{i}$ $F = \frac{500 \left[\left(1 + \frac{0,095}{12}\right)^{24} - 1 \right]}{\frac{0,095}{12}}$ $= R\,13\,158,64744\dots$ $\text{Total} = 17\,521,17895\dots + 13\,158,64744\dots$ $= R30\,679,83$	✓ $i = \frac{0,095}{12}$ ✓ $n = 48$ in A ✓ substitution into correct formula ✓ $n = 24$ in F ✓ substitution into correct formula ✓ adding compound and future values (6)
		[13]

QUESTION/VRAAG 8

8.1	$f(x) = x^2 - 2$ $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $f'(x) = \lim_{h \rightarrow 0} \frac{x^2 + 2xh + h^2 - 2 - (x^2 - 2)}{h}$ $f'(x) = \lim_{h \rightarrow 0} \frac{2xh + h^2}{h}$ $f'(x) = \lim_{h \rightarrow 0} \frac{h(2x + h)}{h}$ $f'(x) = \lim_{h \rightarrow 0} (2x + h)$ $\therefore f'(x) = 2x$ OR/OF $f(x) = x^2 - 2$ $f(x+h) = (x+h)^2 - 2 = x^2 + 2xh + h^2 - 2$ $f(x+h) - f(x) = 2xh + h^2$ $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $f'(x) = \lim_{h \rightarrow 0} \frac{2xh + h^2}{h}$ $f'(x) = \lim_{h \rightarrow 0} \frac{h(2x + h)}{h}$ $f'(x) = \lim_{h \rightarrow 0} (2x + h)$ $\therefore f'(x) = 2x$	✓ $f(x+h)$ ✓ substitution ✓ simplification ✓ factorisation ✓ answer OR/OF ✓ $f(x+h)$ ✓ simplification ✓ substitution ✓ factorisation ✓ answer (5)
8.2.1	$\frac{d}{dx} [3x^2 - 4x]$ $= 6x - 4$	✓ $6x$ ✓ -4 (2)
8.2.2	$g(x) = -2\sqrt{x}(x-1)^2$ $g(x) = -2x^{\frac{1}{2}}(x^2 - 2x + 1)$ $g(x) = -2x^{\frac{5}{2}} + 4x^{\frac{3}{2}} - 2x^{\frac{1}{2}}$ $g'(x) = -5x^{\frac{3}{2}} + 6x^{\frac{1}{2}} - x^{-\frac{1}{2}}$	✓ $x^{\frac{1}{2}}$ ✓ expansion ✓ $-5x^{\frac{3}{2}} + 6x^{\frac{1}{2}}$ ✓ $-x^{-\frac{1}{2}}$ (4)

8.3	$y = 4x - 14$ tangent $\therefore 4x - 4 = 4$ $4x = 8$ $x = 2$ $\therefore y = 4(2) - 14$ at point $(2 ; -6)$ $g(2) = a(2)^2 + b(2) - 18 = -6$ $4a + 2b = 12 \quad \dots(1)$ $g'(2) = 2a(2) + b = 4$ $4a + b = 4 \quad \dots(2)$ $(1) - (2)$ $b = 8$ $4a + b = 4$ $4a + 8 = 4$ $4a = -4$ $a = -1$ OR/OF $2x^2 - 4x - 6 = 4x - 14$ $2x^2 - 8x + 8 = 0$ $x^2 - 4x + 4 = 0$ $(x - 2)^2 = 0$ $\therefore x = 2$ $\therefore y = 4(2) - 14$ at point $(2 ; -6)$ $g(2) = a(2)^2 + b(2) - 18 = -6$ $4a + 2b = 12 \quad \dots(1)$ $g'(2) = 2a(2) + b = 4$ $4a + b = 4 \quad \dots(2)$ $(1) - (2)$ $b = 8$ $4a + b = 4$ $4a + 8 = 4$ $4a = -4$ $a = -1$	$\checkmark 4x - 4 \checkmark = 4$ $\checkmark y\text{-value}$ $\checkmark g(2) = y\text{-value}$ $\checkmark g'(2) = 4$ $\checkmark a \text{ and } b$ (6) OR/OF $\checkmark \text{equating}$ $\checkmark y\text{-value}$ $\checkmark g(2) = y\text{-value}$ $\checkmark g'(x) \checkmark g'(2) = 4$ $\checkmark a \text{ and } b$ (6)
		[17]

QUESTION/VRAAG 9

9.1	$f(x) = (x-4)(x^2 - 2x + 1)$ $f(x) = (x-4)(x-1)^2$ $\therefore k = 1$ OR/OF $f(1) = 1 - 6 + 9 - 4 = 0$ $(x-1)$ is a factor $\therefore k = 1$ OR/OF $-4k^2 = -4$ $k^2 = 1$ $\therefore k = 1$	$\checkmark (x^2 - 2x + 1)$ $\checkmark (x-1)^2$ OR/OF $\checkmark f(1)$ $\checkmark f(1) = 0$ OR/OF $\checkmark -4k^2 = -4$ $\checkmark k^2 = 1$
9.2	$3x^2 - 12x + 9 = 0$ $x^2 - 4x + 3 = 0$ $(x-3)(x-1) = 0$ $x = 3$ or $x = 1$ TP's: $(3; -4)$ and $(1; 0)$	$\checkmark f'(x)$ $\checkmark$ values of x $\checkmark \checkmark$ turning points
9.3	$f''(x) = 6x - 12$ $f''(-3) = -30$ $f''(x) < 0$, therefore concave down	$\checkmark$ substitution $x = -3$ into $f''(x)$ $\checkmark$ concave down
9.4		$\checkmark$ turning points $\checkmark$ x -intercepts $\checkmark$ y -intercept $\checkmark$ shape
9.5	Distance = $(-6x^2 + 24x - 18) - (x^3 - 6x^2 + 9x - 4)$ $= -6x^2 + 24x - 18 - x^3 + 6x^2 - 9x + 4$ $= -x^3 + 15x - 14$ Max distance : $-3x^2 + 15 = 0$ $3x^2 = 15$ $x^2 = 5$ $x = \pm\sqrt{5}$, but $1 < x < 3$ $\therefore x = \sqrt{5}$ $d(\sqrt{5}) = 8,36$ max distance = 8,36	$\checkmark h(x) = -2f'(x)$ $\checkmark$ simplification $\checkmark$ first derivative $\checkmark = 0$ $\checkmark$ x -value $\checkmark$ answer
		[18]

QUESTION/VRAAG 10

10.1	$P(A \text{ or } B) = P(A) + P(B)$ $P(B) = P(A \text{ or } B) - P(A)$ $= 0,79 - 0,42$ $= 0,37$	✓ substitution ✓ answer (2)
10.2	People pay: R2 600 $0,7 \times R2\ 600 = R1\ 820$ Total value of pay-outs = R2 600 – R1 820 $= R780$ $P(\text{someone to win}) = \frac{16}{52} \times \frac{1}{2}$ $= \frac{2}{13}$ Total number of people winning = $\frac{2}{13} \times 260$ $= 40$ $\therefore$ Pay-out = $\frac{R780}{40}$ $= R19,50$ per person winning OR/OF People pay: R2 600 Total value of pay-outs $= 0,3 \times R2\ 600$ $= R780$ $P(\text{someone to win}) = \frac{16}{52} \times \frac{1}{2}$ $= \frac{2}{13}$ Total number of people winning = $\frac{2}{13} \times 260$ $= 40$ $\therefore$ Pay-out = $\frac{R780}{40}$ $= R19,50$ per person winning	✓ R1 820 ✓ amount willing to pay-out ✓ $\frac{16}{52}$ ✓ $\frac{2}{13}$ ✓ winners ✓ pay-out (6) OR/OF ✓ $0,3 \times R2\ 600$ ✓ amount willing to pay-out ✓ $\frac{16}{52}$ ✓ $\frac{2}{13}$ ✓ winners ✓ pay-out (6)
		[8]

QUESTION/VRAG 11

11.1	$\frac{1}{\textcircled{5}} \times \frac{9}{\quad} \times \frac{9}{\quad} = 81$ 500 cannot be included $\therefore$ 80 possibilities $\frac{4}{\quad} \times \frac{1}{\textcircled{5}} \times \frac{9}{\quad} = 36$ $\frac{4}{\quad} \times \frac{9}{\quad} \times \frac{1}{\textcircled{5}} = 36$ Total possibilities $= 80 + 36 + 36$ $= 152$ OR 501 to 599: $99 - 10 - 9 = 80$ possibilities 601 to 699: $9 + 9 = 18$ possibilities of having a 5 in the 10's digit or units digit. Thus 601 to 699 $= 4 \times 18$ Total possibilities $= 4 \times 18 + 80$ $= 152$	✓ $1 \times 9 \times 9$ ✓ $4 \times 1 \times 9$ ✓ $4 \times 9 \times 1$ ✓ 152 (4) ✓ 80 ✓ 18 ✓ 4×18 ✓ 152 (4)
11.2	P(not having such a number) $= 1 - \frac{152}{499}$ $= \frac{347}{499}$ $= 0,70$	✓ $n(S) = 499$ ✓ $1 - P(\text{having number})$ ✓ numerator (3)
		[7]

TOTAL/TOTAAL: 150