basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

NATIONAL SENIOR CERTIFICATE/ *NASIONALE SENIOR SERTIFIKAAT*

GRADE/*GRAAD* 11

MATHEMATICS P1/*WISKUNDE V1*

NOVEMBER 2019

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

These marking guidelines consist of 17 pages./
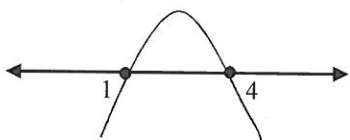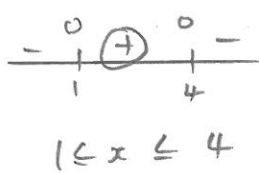*Hierdie nasienriglyne bestaan uit 17 bladsye.*

NOTE:
- If a candidate answered a question TWICE, mark only the FIRST attempt.
- If a candidate crossed out an answer and did not redo it, mark the crossed-out answer.
- Consistent accuracy applies to ALL aspects of the marking guidelines.
- Assuming values/answer in order to solve a problem is unacceptable.

LET WEL:
- *As 'n kandidaat 'n vraag TWEE keer beantwoord het, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n antwoord deurgehaal en nie oorgedoen het nie, sien die deurgehaalde antwoord na.*
- *Volgehoue akkuraatheid is op ALLE aspekte van die nasienriglyne van toepassing.*
- *Dit is onaanvaarbaar om waardes/antwoorde te veronderstel om 'n probleem op te los.*

QUESTION/*VRAAG* 1

1.1.1	$2x(x-3)=0$ $2x=0$ or/of $x=3$ $x=0$	$\checkmark$ $x=0$ $\checkmark$ $x=3$ (2)
1.1.2	$3x^2-2x=4$ $3x^2-2x-4=0$ $x=\dfrac{-b\pm\sqrt{b^2-4ac}}{2a}$ $=\dfrac{-(-2)\pm\sqrt{(-2)^2-4(3)(-4)}}{2(3)}$ $x=1{,}54 \quad or \quad x=-0{,}87$	$\checkmark$ standard form/*standaardvorm* $\checkmark$ substitution into correct formula/ *vervanging in korrekte formule* $\checkmark$ answer/*antw.* $\checkmark$ answer/*antw.* (4)
1.1.3	$(x-1)(4-x)\geq 0$ $1\leq x\leq 4$	$\checkmark$ critical values/*kritieke waardes* $\checkmark\checkmark$ $1\leq x\leq 4$ (3)
1.1.4	$\sqrt{5-x}=x+1$ $5-x=(x+1)^2$ $5-x=x^2+2x+1$ $x^2+3x-4=0$ $(x+4)(x-1)=0$ $x\neq -4$ or $x=1$	$\checkmark$ squaring both sides/ *kwadreer beide kante* $\checkmark$ standard form/*standaardvorm* $\checkmark$ factors or using formula/ *faktore of gebruik formule* $\checkmark$ both solutions to/ *beide oplossings x* $\checkmark$ rejecting/*verwerp* $x=-4$ (5)

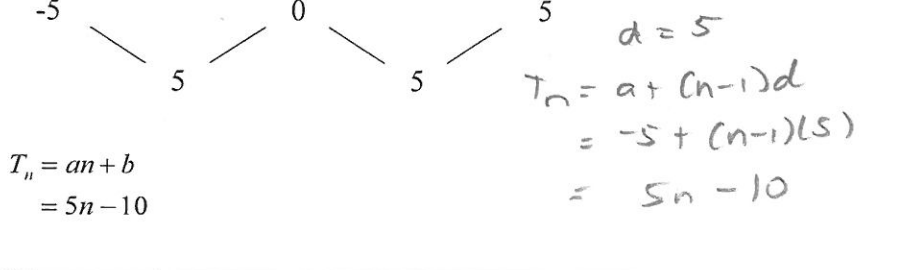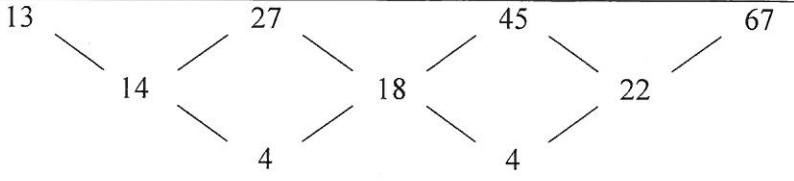| 1.2	$x + 4 = 2y$ and $y^2 - xy + 21 = 0$ $\therefore x = 2y - 4$ $y^2 - (2y-4)y + 21 = 0$ $y^2 - 2y^2 + 4y + 21 = 0$ $-y^2 + 4y + 21 = 0$ $y^2 - 4y - 21 = 0$ $(y-7)(y+3) = 0$ $y = 7$ or $y = -3$ $x = 2(7) - 4$ or $x = 2(-3) - 4$ $x = 10$ or $x = -10$	✓ $x = 2y - 4$ ✓ substitution /*verv.* ✓ std form/*stand. vorm* ✓ factors or using formula/ *faktore of gebruik formule* ✓ y-values/*wrdes* ✓ x-values/*wrdes* (6)
1.3	$2(x-3)^2 + 2 = 0$ $(x-3)^2 = -1$ $\therefore$ roots are non - real/*wortels is niereël* $\qquad x^2 - 6x + 10 = 0$ $\qquad \Delta = (-6)^2 - 4(1)(10)$ $\qquad = -4$	✓ $(x-3)^2 = -1$ ✓ conclusion/*gevolgtrekking* (2)
1.4	$g(x) = -2x^2 - px + 3$ $x = \dfrac{-b}{2a} = \dfrac{-(-p)}{2(-2)} = -\dfrac{p}{4}$ $y = -2\left(-\dfrac{p}{4}\right)^2 - p\left(-\dfrac{p}{4}\right) + 3$ $-2\left(-\dfrac{p}{4}\right)^2 - p\left(-\dfrac{p}{4}\right) + 3 = 3\dfrac{1}{8}$ $-\dfrac{p^2}{8} + \dfrac{2p^2}{8} = \dfrac{1}{8}$ $p^2 = 1$ $p = \pm 1$ **OR/OF** max value/maks waarde $= \dfrac{4ac - b^2}{4a}$ $\dfrac{4(-2)(3) - p^2}{4(-2)} = \dfrac{25}{8}$ $\dfrac{-24 - p^2}{-8} = \dfrac{25}{8}$ $-192 - 8p^2 = -200$ $8p^2 = 8$ $p = \pm 1$	✓ $x = -\dfrac{p}{4}$ ✓ $-2\left(-\dfrac{p}{4}\right)^2 - p\left(-\dfrac{p}{4}\right) + 3 = 3\dfrac{1}{8}$ ✓ simplification/*vereenvoudiging* ✓ $p = \pm 1$ ✓ max value $= \dfrac{4ac - b^2}{4a}$ ✓ $\dfrac{4(-2)(3) - p^2}{4(-2)} = \dfrac{25}{8}$ ✓ simplification ✓ $p = \pm 1$ (4) **[26]**

QUESTION/*VRAAG* 2

2.1	$\dfrac{3^{2x+1}.15^{2x-3}}{27^{x-1}.3^{x}.5^{2x-4}}$ $= \dfrac{3^{2x+1}.3^{2x-3}.5^{2x-3}}{3^{3x-3}.3^{x}.5^{2x-4}}$ $= 3^{2x+1+2x-3-3x+3-x}.5^{2x-3-2x+4}$ $= 3.5$ $= 15$	✓ prime bases/*priembasis* ✓ base/*basis* 3 ✓ adding and subtracting exponents/*optel en aftrek van eksponente* ✓ answer/*antw.* (4)
2.2.1	$\left(\dfrac{1}{2}\right)^{x}=32$ $\left(\dfrac{1}{2}\right)^{x}=2^{5}$ $2^{-x}=2^{5}$ $-x=5$ $x=-5$ **OR/*OF*** $\left(\dfrac{1}{2}\right)^{x}=32$ $\left(\dfrac{1}{2}\right)^{x}=2^{5}$ $\left(\dfrac{1}{2}\right)^{x}=\left(\dfrac{1}{2}\right)^{-5}$ $x=-5$ $x=\dfrac{\log 32}{\log \frac{1}{2}}$ $=-5$	✓ same base/*dieselfde basis* ✓ equating indices/ *gelykstelling van eksponente* ✓ answer/*antw.* **OR/*OF*** ✓ same base/*dieselfde basis* ✓ simplification/*vereenv* ✓ answer/*antw.* (3)
2.2.2	$\sqrt[3]{\dfrac{1}{x^{2}}}=4$ $x^{\frac{-2}{3}}=2^{2}$ $x=\pm\left(2^{2}\right)^{-3/2}$ $x=\pm 2^{-3}$ $x=\pm\dfrac{1}{8}$ $\left(x^{-2/3}\right)^{-3/2}=\pm(4)^{-3/2}$ $x=\pm\dfrac{1}{8}$	✓ exp form/*eksp. vorm* ✓ $x=\left(2^{2}\right)^{\frac{3}{-2}}$ ✓ answer/*antw.* $\pm\dfrac{1}{8}$ (3)

2.2.3	$2^x - \dfrac{12}{2^x} = -4$		$\checkmark$mult by LCD/*KGN*
	$\left(2^x\right)^2 - 12 = -4 \cdot 2^x$		$\checkmark \left(2^x\right)^2 + 4 \cdot 2^x - 12 = 0$
	$\left(2^x\right)^2 + 4 \cdot 2^x - 12 = 0$		$\checkmark$factors/*faktore*
	$\left(2^x + 6\right)\left(2^x - 2\right) = 0$		$\checkmark 2^x \neq -6$
	$2^x \neq -6 \quad$ or $\quad 2^x = 2$		$\checkmark x = 1$
	no solution/*geen oplossing* or/*of* $\quad x = 1$		(5)
	OR/*OF*		**OR/*OF***
	Let $2^x = k$		
	$k - \dfrac{12}{k} = -4$		
	$k^2 - 12 = -4k$		
	$k^2 + 4k - 12 = 0$		$\checkmark$ mult by LCD/*KGN*
	$(k - 2)(k + 6) = 0$		$\checkmark k^2 + 4k - 12 = 0$
	$k = 2 \quad$ or $\quad k = -6$		$\checkmark$factors/*faktore*
	$2^x = 2 \quad$ or $\quad 2^x \neq -6$		$\checkmark 2^x \neq -6$
	$x = 1 \quad$ or $\quad$ no solution		$\checkmark x = 1$
			(5)
2.3	$\dfrac{\sqrt{2}}{\sqrt{2}+1} + \dfrac{4}{\sqrt{2}}$	$\dfrac{\sqrt{2}}{\sqrt{2}+1} \times \dfrac{\sqrt{2}-1}{\sqrt{2}-1} + \dfrac{4}{\sqrt{2}} \times \dfrac{\sqrt{2}}{\sqrt{2}}$	
	$= \dfrac{\sqrt{2}\cdot\sqrt{2}}{\sqrt{2}\left(\sqrt{2}+1\right)} + \dfrac{4\left(\sqrt{2}+1\right)}{\sqrt{2}\left(\sqrt{2}+1\right)}$	$= \dfrac{2-\sqrt{2}}{2-1} + \dfrac{4\sqrt{2}}{2}$	$\checkmark$LCD/*KGN*
	$= \dfrac{\left(\sqrt{2}\right)^2 + 4\sqrt{2} + 2^2}{2+\sqrt{2}}$	$= 2 - \sqrt{2} + 2\sqrt{2}$	$\checkmark$perfect square trinomial *volkome vierkant drieterm* $\checkmark$simplification denominator/ *vereenvoudigingsnoemer*
	$= \dfrac{\left(\sqrt{2}+2\right)^2}{2+\sqrt{2}}$	$= 2 + \sqrt{2}$	$\checkmark$factors/*faktore*
	$= 2 + \sqrt{2}$		$\checkmark$answer/*antwoord*
			(5)
			[22]

QUESTION/*VRAAG* 3

3.1	$-5 \quad\quad 0 \quad\quad 5$ $5 \quad\quad\quad 5$ $d = 5$ $T_n = a + (n-1)d$ $= -5 + (n-1)(5)$ $= 5n - 10$ $T_n = an + b$ $= 5n - 10$	✓ $5n$ ✓ -10 (2)
3.2	$T_{12} = 5(12) - 10$ $= 50$	✓ substitution/*verv.* ✓ answer/*antw.* (2)
3.3	$5n - 10 = 130$ $5n = 140$ $n = 28$ 28th term (T_{28})	✓ substitution/*verv.* ✓ answer/*antw.* (2)
		[6]

QUESTION/*VRAAG* 4

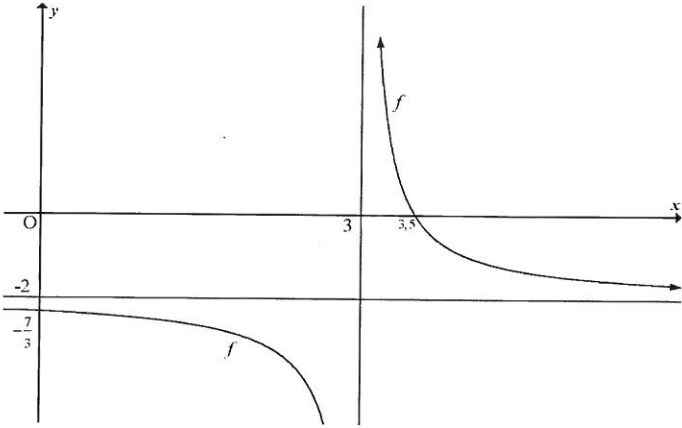|		
4.1.1	13　　　27　　　45　　　67 　　14　　　18　　　22 　　　　4　　　4 It is a quadratic number pattern/ *Dit is 'n kwadratiese getalpatrron* Second difference is constant./*Tweede verskil is konstant.*	✓quadratic/ *kwadratiese* ✓justification/ *regverdiging* (2)
4.1.2	$2a = 4$ $a = 2$ $3(2) + b = 14$ $b = 8$ $2 + 8 + c = 13$ $c = 3$ $T_n = 2n^2 + 8n + 3$	✓ $a = 2$ ✓ $b = 8$ ✓ $c = 3$ ✓ $T_n = 2n^2 + 8n + 3$ (4)
4.1.3	$T_n = 2n^2 + 8n + 3$ $T_{100} = 2(100)^2 + 8(100) + 3$ $\quad = 20803$	✓ substitution/*vervanging* ✓answer/*antwoord* (2)
4.1.4 ✳	$4n + 10 = 110$ $\quad 4n = 100$ $\quad\quad n = 25$ $T_{25} = 2(25)^2 + 8(25) + 3$ $\quad = 1453$ $T_{26} = 2(26)^2 + 8(26) + 3$ $\quad = 1563$	✓✓ $4n + 10 = 110$ ✓ $n = 25$ ✓ $T_{25} = 1453$ ✓ $T_{26} = 1563$ (5)

✳
$$T_n = 2n^2 + 8n + 3$$
$$T_{n+1} = 2(n+1)^2 + 8(n+1) + 3$$
$$= 2n^2 + 12n + 13$$

$$T_{n+1} - T_n = 110$$
$$2n^2 + 12n + 13 - (2n^2 + 8n + 3) = 110$$
$$4n = 100$$
$$n = 25, \text{ then as before}$$

4.1.5	The first and second differences are all even but the first term is odd./ *Die eerste en tweede verskille is gelyk maar die eerste term is onewe.* Thus when adding an even to an odd number the answer will always be odd./*Wanneer 'n ewe by 'n onewe getal gevoeg word, sal die antwoord altyd onewe wees.*	✓argument ✓conclusion/*gevolgtr*
	OR/OF $T_n = 2n^2 + 8n + 3$ $2n^2$ has an even coeficient thus it even $8n$ has an even coeficient thus it even 3 is an odd number $\therefore$ the values will always be odd	**OR/OF** ✓argument ✓conclusion/*gevolgtr*
	OR/OF $T_n = 2n^2 + 8n + 3$ $= 2(n^2 + 4n) + 3$ For all $n \in N$, $2(n^2 + 4n)$ is even/*ewe* $\therefore 2(n^2 + 4n) + 3$ is odd/*onewe* because an even + odd will always be odd/*want ' n ewe en ' n onewe sal altyd ' n onewe maak* $T_n = 2n^2 + 8n + 2 + 1$ $= 2(n^2 + 4n + 1) + 1$ $\underset{even}{2\cdots} + 1$ $= odd$	**OR/OF** ✓ $2(n^2 + 4n) + 3$ ✓conclusion/*gevolgtr* (2)
4.2	1st difference/1ste *verskil*: $2p - 4;\ p - 3;\ \dfrac{p}{2} - 1$ 2nd difference/2de *verskil*: $p - 3 - (2p - 4) = \dfrac{p}{2} - 1 - (p - 3)$ $\qquad -p + 1 = -\dfrac{p}{2} + 2$ $\qquad -\dfrac{p}{2} = 1$ $\qquad p = -2$ $2(-2) - 4;\ -2 - 3;\ \dfrac{-2}{2} - 1$ $-8; -5; -2$ $x = -4$ and $y = -9$	✓ $p - 3 - (2p - 4) = \dfrac{p}{2} - 1 - (p - 3)$ ✓ $p = -2$ ✓ $2(-2) - 4 = -8$ ✓ $y = -9$ ✓ $x = -4$ (5) **[20]**

QUESTION/*VRAAG* 5

5.1	$f(x) = \dfrac{1}{x-3} - \dfrac{2x+6}{x+3}$	
	$= \dfrac{1}{x-3} - \dfrac{2(x+3)}{x+3}$	✓common factor *gemene faktor* ✓simplification/*vereenv.*
	$= \dfrac{1}{x-3} - 2$	(2)
5.2	$x = 3$	✓$x = 3$
	$y = -2$	✓$y = -2$
		(2)
5.3	$0 = \dfrac{1}{x-3} - 2$	✓subst./*verv.* $y = 0$
	$2 = \dfrac{1}{x-3}$	
	$2(x-3) = 1$	✓simplification/*vereenv.*
	$2x - 6 = 1$	
	$x = \dfrac{7}{2}$	✓answer/*antw.*
		(3)
5.4	$y = \dfrac{1}{0-3} - 2$	✓subst/*verv.* $x = 0$
	$= \dfrac{-7}{3}$	✓answer/*antw.*
	OR/*OF*	
	$\left(0 ; \dfrac{-7}{3}\right)$	✓✓answer/*antw*
		(2)

5.5		✓asymptotes/*asimptote* ✓shape/*vorm* ✓x- and y- int. (3)
5.6	$y = x + c$ $-2 = 3 + c$ $c = -5$ $y = x - 5$ $y = (x - 3) - 2$ $= x - 5$	✓ $m = 1$ ✓substitution of/*vervanging* *van* $(3; -2)$ ✓ $c = -5$ (3)
5.7	Translate f 3 units to the left and 2 units up. *Transleer f 3 eenhede na links en 2 eenhede op.*	✓3 units to the left *eenhede na links* 2 units up/*eenhede op* (2)
5.8	$x \in (-\infty; +\infty) \ ; \ x \neq 0$ **OR/OF** $x \in R; x \neq 0$	✓ $x \in (-\infty; +\infty)$ ✓ $x \neq 0$ (2) **[19]**

QUESTION/*VRAAG* 6

6.1	$y = -3x + k$ $0 = -3(5) + k$ $k = 15$	✓ substitute/*verv.* $(5;0)$ (1)
6.2	$x = \dfrac{-b}{2a}$ $x = \dfrac{-2}{2(-1)}$ *or* $x = \dfrac{-3+5}{2}$ $x = 1$ $= 1$ $y = -(1)^2 + 2(1) + 15$ $y = 16$ $D(1;16)$	✓ $x = 1$ ✓ substitution/*vervanging* ✓ $y = 16$ (3)
6.3	$x < 1$ **OR/*OF*** $x \in (-\infty; 1)$	✓ answer/*antwoord* (1)
6.4	$A(-3;0)$ $D(1;16)$ Ave grad / *Gemidgrad* $= \dfrac{y_2 - y_1}{x_2 - x_1}$ $ = \dfrac{0-16}{-3-1}$ $ = 4$	✓ formula/*formule* ✓ subst. into correct formula /*verv. in formule* ✓ answer/*antwoord* (3)

6.5	$D(1\ ;16)$ $E(1;12)$ $DE = 4\,\text{units}$	✓ $E(1;12)$ ✓ answer/*antwoord* (2)
6.6	$h(x)= f(x-1)-2$ $= -(x-1)^2 + 2(x-1)+15-2$ $= -x^2 +2x-1+2x-2+15-2$ $= -x^2 +4x+10$ $= -(x^2 -4x-10)$ $= -(x^2 +-4x +4-4-10)$ $= -(x-2)^2 +14$ **OR/*OF*** $D(1;16)$ and $a=-1$ $\quad f(x)=-(x-1)^2 +16$ $\quad h(x)= f(x-1)-2$ $\qquad = -(x-1-1)^2 +16-2$ $\qquad = -(x-2)^2 +14$	✓ $-(x-1)^2 + 2(x-1)+15-2$ ✓ $-x^2 +4x+10$ ✓ $-(x^2 +-4x +4-4-10)$ ✓ $h(x)=-(x-2)^2 +14$ **OR/*OF*** ✓subst./*vervang* $D(1;16)$ and $a=-1$ ✓correct form/*korrekte vorm* ✓ $h(x)=-(x-1-1)^2 +16-2$ ✓ $h(x)=-(x-2)^2 +14$ (4)
6.7	max value of/*maks wrde van* $f(x)$ is 16 $\therefore$ max value of/*maks wrde van* $f(x)-12$ is $16-12=4$ max/*maks* $p(x)=3^4$ $\qquad = 81$	✓ max value of $f(x)$ is 16 ✓ max value of $f(x)-12$ is $16-12=4$ ✓answer/*antw.* (3)
6.8	$x \in R\,;x \neq 1$	✓✓answer/*antwoord* (2) **[19]**

QUESTION/*VRAAG* 7
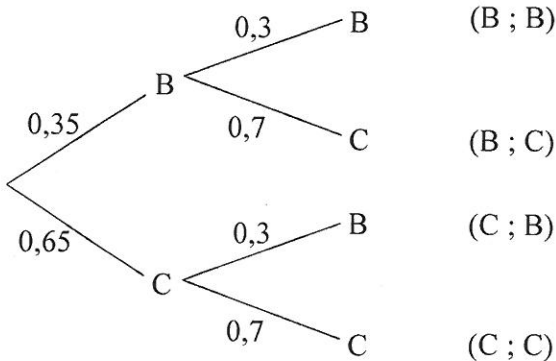
7.1	$y = 3^{x+p} - 27$	$\backslash$
	$54 = 3^{3+p} - 27$	✓ subs/*vervanging* $(3 \; ; 54)$
	$81 = 3^{3+p}$	
	$3^4 = 3^{3+p}$	✓ equating indices/*gelykst. eksp.*
	$3 + p = 4$	
	$p = 1$	✓ answer/*antwoord*
		(3)
7.2	range / *waardeversameling* $y > -27$	✓✓ answer/*antwoord*
	or / *of*	
	$y \in (-27 ; \infty)$	(2)
7.3	$-y = 3^{x+1} - 27$	
	$g(x) = -1.3^{x+1} + 27$	✓ new equation/*nuwe verg.*
	$y = -1.3^{0+1} + 27$	✓ answer/*antwoord*
	$= 24$	
	$y -$ intercept/*afsnit*$(0 ; 24)$ Coordinates	(2)
		[7]

QUESTION/*VRAAG* 8

8.1	$A = P(1-i)^n$ $85\,000 = 200\,000(1-i)^5$ $i = 1 - \sqrt[5]{\dfrac{85\,000}{200\,000}}$ $i = 15{,}73\%$	✓ substitution/*verv.* ✓ rewrite in terms of i/ *skryf in terme van i* ✓ answer/*antw.* (3)
8.2	$1 + i_{eff} = \left(1 + \dfrac{i_{nom}}{m}\right)^m$ $1 + i_{eff} = \left(1 + \dfrac{0{,}085}{4}\right)^4$ $i_{eff} = \left(1 + \dfrac{0{,}085}{4}\right)^4 - 1$ $i_{eff} = 8{,}77\%$	✓ formula/*form.* ✓ $i = \dfrac{0{,}085}{4}$ ✓ answer/*antw.* (3)
8.3.1	$A = P(1+i)^n$ $= 28\,000\left(1 + \dfrac{0{,}12}{12}\right)^{2 \times 12}$ $= R\,35\,552{,}57$	✓ substitution/*verv.* ✓ answer/*antw.* (2)
8.3.2	$A = 28\,000\left(1 + \dfrac{0{,}12}{12}\right)^{12 \times 4}\left(1 + \dfrac{0{,}129}{2}\right)^{2 \times 4} +$ $12\,000\left(1 + \dfrac{0{,}12}{12}\right)^{12}\left(1 + \dfrac{0{,}129}{2}\right)^{2 \times 4} - 6500\left(1 + \dfrac{0{,}129}{2}\right)^{2 \times 3}$ $= R\,87\,267{,}25$ **OR/*OF***	✓ $\dfrac{0{,}12}{12}$ and $n = 48$ ✓ $\dfrac{0{,}129}{12}$ and $n = 8$ ✓ $12\,000\left(1+\dfrac{0{,}12}{12}\right)^{12}\left(1+\dfrac{0{,}129}{2}\right)^{2 \cdot 4}$ ✓ $-6500\left(1+\dfrac{0{,}129}{2}\right)^{2 \times 3}$ ✓ answer/*antw.* (5)

$$A = \left\langle \left\{ 28\,000 \left(1 + \frac{0,12}{12} \right)^{12 \times 3} + 12\,000 \right\} \right.$$

$$\left(1 + \frac{0,12}{12} \right)^{12} \left(1 + \frac{0,129}{2} \right)^{2} - 6500 \left\rangle \left(1 + \frac{0,129}{2} \right)^{6} \right.$$

$$= R87\,267,25$$

✓✓

$$28\,000 \left(1 + \frac{0,12}{12} \right)^{12 \times 3} + 12000$$

✓

$$\left(1 + \frac{0,12}{12} \right)^{12} \left(1 + \frac{0,129}{2} \right)^{2} - 6500$$

✓ $\left(1 + \frac{0,129}{2} \right)^{6}$

✓ answer/*antw.*

(5)

[13]

QUESTION/*VRAAG* 9

9.1.1	$P(A \text{ and/en } B)$ $= P(A) \times P(B)$ $= 0,48 \times 0,26$ $= 0,12 \qquad \dfrac{78}{625}$	✓ $0,48 \times 0,26$ ✓ answer/*antwoord* 2dp (2)
9.1.2	$P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$ $\quad = 0,48 + 0,26 \; - \; 0$ $\quad = 0,74 \qquad \dfrac{37}{50}$	✓ substitution/*verv.* ✓ answer/*antwoord* (2)
9.2.1	$10 + 6 + x + 5 = 29$ $x = 8$ $41 + 10 + 30 + 6 + 8 + 5 + 25 + y = 130$ $y = 5$	✓ method/*metode* ✓ value of/*wrde van* x ✓ method/*metode* ✓ value of/*wrde van* y (4)
9.2.2	$P(\text{no nut snack or no snack}) = \dfrac{41 + 10 + 30}{130} + \dfrac{5}{130}$ $= \dfrac{43}{65} \qquad\qquad 0,66$	✓ $41 + 10 + 3$ ✓ adding/*optel* 5 ✓ answer/*antwoord* (3)
9.3.1		✓ branch at first level *tak by eerste vlak* ✓ branches at second level/*takke by tweede vlak* ✓ outcomes/*uitkomste* ✓ probabilities /*moontlikhede* (4)

9.3.2	$P(BB) + P(CC) = (0,35 \times 0,3) + (0,65 \times 0,7)$ $= 0,56 = 56\%$ $\frac{14}{25}$ $0,56 \times 200 = 112$ clients/*kliënte*	✓ $(0,35 \times 0,3) + (0,65 \times 0,7)$ ✓ probability/*moontlik-hede* ✓ answer/*antwoord* (3)
9.3.3	Number of clients who chose different meals/*Getal kliënte wat verskillende maaltye gekies het* = $200 - 112 = 88$ More clients preferred to make the same choice/*Meer kliënte verkies om dieselfde keuse te maak.*	✓ 88 ✓ conclusion/*gevolgtr.* (2) **[20]**

TOTAL/*TOTAAL*: 150