Province of the
EASTERN CAPE
EDUCATION

Iphondo leMpuma Kapa: Isebe leMfundo
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Porafensie Ya Kapa Botjahabela: Lefapha la Thuto

NATIONAL SENIOR CERTIFICATE/ *NASIONALE SENIOR SERTIFIKAAT*

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GRADE 12/*GRAAD 12*

JUNE/*JUNIE* 2025

MATHEMATICS P1 MARKING GUIDELINE/ *WISKUNDE V1 NASIENRIGLYN*

MARKS/*PUNTE*: **150**

This marking guideline consists of 18 pages./
Hierdie nasienriglyn bestaan uit 18 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 vir substitusie in die korrekte formule toegeken.

QUESTION/*VRAAG 1*

1.1.1	$x^2+2x+1=0$ $(x+1)(x+1)=0$ $x+1=0$ or/*of* $x+1=0$ $x=-1$ or/*of* $x=-1$ **OR/*OF*** $x^2+2x+1=0$ $x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$ $=\frac{-(2)\pm\sqrt{(2)^2-4(1)(1)}}{2(1)}$ $=\frac{-2\pm\sqrt{0}}{2}$ $x=-1$ or / *of* $x=-1$ Answers only – Full Marks *Slegs antwoorde – Volpunte*	✓ factors / *faktore* ✓ both answers / *beide antwoorde* **OR/*OF*** ✓ correct substitution into correct formula / *korrekte vervanging in korrekte formule* ✓ both answers / *beide antwoorde* (2)
1.1.2	$x(5x-3)=1$ $5x^2-3x-1=0$ $x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$ $x=\frac{-(-3)\pm\sqrt{(-3)^2-4(5)(-1)}}{2(5)}$ $x=\frac{3\pm\sqrt{29}}{10}$ $\therefore x=-0,24$ or / *of* $x=0,84$ Penalise 1 mark for incorrect rounding off./ *Penaliseer* 1 *punt vir verkeerde afronding.*	✓ standard form / *standaardvorm* ✓ substitution / *vervanging* ✓✓ x-values / x-*waardes* (4)

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1.1.3	$2x+3>x^2$ $-x^2+2x+3>0$ $x^2-2x-3<0$ critical values/*kritieke waardes* $(x+1)(x-3)=0$ $x=-1$ or/*of* $x=3$  3 $-1<x<3,\ x\in\mathbf{R}$ **OR/*OF*** $x\in(-1\ ;\ 3),\ x\in\mathbf{R}$	✓ standard form / *standaardvorm* ✓ critical values / *kritieke waardes* ✓✓ $-1<x<3,\ x\in\mathbf{R}$ (accuracy / *akkuraatheid*) **OR/*OF*** $x\in(-1\ ;\ 3),\ x\in\mathbf{R}$ (4)
1.1.4	$\sqrt{7x-12}-x=0$ $\sqrt{7x-12}=x$ $\left(\sqrt{7x-12}\right)^2=(x)^2$ $7x-12=x^2$ $x^2-7x+12=0$ $(x-3)(x-4)=0$ $\therefore\ x=3$ or / *of* $x=4$	✓ isolating surd / *isoleer wortelvorm* ✓ square both sides / *kwadreer beide kante* ✓ standard form / *standaardvorm* ✓ both answers / *beide antwoorde* (4)
1.1.5	$\left(\frac{1}{6}\right)^{3x+2}.216^{3x}=\frac{1}{216}$ $6^{-3x-2}\times6^{9x}=6^{-3}$ $\therefore\ 6x-2=-3$ $6x=-1$ $x=-\frac{1}{6}$	✓ same base / *dieselfde basis* ✓ exponential law / *eksponentwet* ✓ equating exponents / *gelykstel van eksponente* ✓ answer / *antwoord* (4)

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1.2	$x + y = 3 \ldots\ldots\ldots\ldots\ldots\ldots (1)$ $x^2 + 2y^2 = 18 \ldots\ldots (2)$ From/*Vanaf* $(1): y = -x + 3 \ldots\ldots\ldots (3)$ (3)into/*in*(2): $x^2 + 2(-x + 3)^2 = 18$ $x^2 + 2(x^2 - 6x + 9) - 18 = 0$ $x^2 + 2x^2 - 12x + 18 - 18 = 0$ $3x^2 - 12x = 0$ $3x(x - 4) = 0$ $3x = 0$ or/*of* $x - 4 = 0$ $x = 0$ or/*of* $x = 4$ $y = 3$ or/*of* $y = -1$	✓ $y = -x + 3$ ✓ substitution / *vervanging* ✓ standard form / *standaardvorm* ✓ x-values / *waardes* ✓ y-values / *waardes* (5)
1.3	$\left(\sqrt{5}\right)^x - \left(\sqrt[3]{2}\right)^y = 17$ $(5)^{\frac{1}{2}x} - (2)^{\frac{1}{3}y} = 25 - 8$ $(5)^{\frac{1}{2}x} - (2)^{\frac{1}{3}y} = 5^2 - 2^3$ $\therefore \frac{1}{2}x = 2$ and/*en* $\frac{1}{3}y = 3$ $\Rightarrow x = 4$ and/*en* $y = 9$ $P = (4 \times 9) = 36$	✓ converting to exponential form / *herlei na eksponensiale vorm* ✓ $17 = 25 - 8$ ✓ equating exponents / *gelykstel van eksponente* ✓ answer / *antwoord* (4)
		[27]

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QUESTION/*VRAAG 2*

2.1.1	Yes / *Ja* ; $-1 < \frac{1}{2} < 1$	✓ Yes / *Ja* ✓ reason / *rede* (2)
2.1.2	$S_\infty = \frac{a}{1-r}$ $= \frac{36}{1-\frac{1}{2}}$ $= 72 \text{ cm}^2$	✓ substitution / *vervanging* ✓ answer / *antwoord* (2)
2.1.3	Side length series / *Sylengte reeks*: $6 + 3\sqrt{2} + 3 ; \ldots \Rightarrow r = \frac{1}{2}$ $T_n = 6\left(\frac{1}{\sqrt{2}}\right)^{n-1} = \frac{3}{8}$ $\left(\frac{1}{\sqrt{2}}\right)^{n-1} = \left(\frac{1}{16}\right) \quad \left(\frac{1}{2}\right)^{n-1} = \left(\frac{1}{256}\right)$ $\left(\frac{1}{\sqrt{2}}\right)^{n-1} = \left(\frac{1}{\sqrt{2}}\right)^{8}$ *OR / OF* $\left(\frac{1}{2}\right)^{n-1} = \left(\frac{1}{2}\right)^{8}$ $\therefore \quad n-1 = 8$ $n = 9$ **OR/*OF*** Area series / *Oppervlakte reeks* side length / *sylengte* = $\frac{3}{8}$ $\Rightarrow$ Area / *Oppervlakte* = $\frac{9}{64}$ $T_n = 36\left(\frac{1}{2}\right)^{n-1} = \frac{9}{64}$ $\left(\frac{1}{2}\right)^{n-1} = \left(\frac{1}{256}\right)$ $\left(\frac{1}{2}\right)^{n-1} = \left(\frac{1}{2}\right)^{8}$ $\therefore \quad n-1 = 8$ $n = 9$	✓ new series / *nuwe reeks* ✓ substitution / *vervanging* ✓ answer / *antwoord* **OR/*OF*** ✓ Area / *Oppervlakte* = $\frac{9}{64}$ ✓ substitution / *vervanging* ✓ answer / *antwoord* (3)

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2.1.4	Series of ONE diagonal / *Reeks van EEN hoeklyn*: $6\sqrt{2} + 6 + 3\sqrt{2} + 3 + \ldots$ $\Rightarrow r = \frac{1}{\sqrt{2}}$ $S_n = \frac{a\left(1-r^n\right)}{1-r}$ $= \frac{6\sqrt{2}\left(1-\left(\frac{1}{\sqrt{2}}\right)^{10}\right)}{1-\frac{1}{\sqrt{2}}}$ $= 28,07$ units / *eenhede* $\because$ there are two diagonals: $\because$ *daar twee hoeklyne is*: $\Rightarrow 2 \times 28,07 = 56,14$ units / *eenhede* **OR/*OF*** Series of TWO diagonals / *Reeks van TWEE hoeklyne*: $12\sqrt{2} + 12 + 6\sqrt{2} + 6 + \ldots$ $\Rightarrow r = \frac{1}{\sqrt{2}}$ $S_n = \frac{a\left(1-r^n\right)}{1-r}$ $= \frac{12\sqrt{2}\left(1-\left(\frac{1}{\sqrt{2}}\right)^{10}\right)}{1-\frac{1}{\sqrt{2}}}$ $= 56,13$ units / *eenhede*	✓ diagonal series / *hoeklyn reeks* ✓ $r = \frac{1}{\sqrt{2}}$ ✓ substitution / *vervanging* ✓ answer / *antwoord* **OR/*OF*** ✓ diagonal series / *hoeklyn reeks* ✓ $r = \frac{1}{\sqrt{2}}$ ✓ substitution / *vervanging* ✓ answer / *antwoord* (4)

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2.2.1	$a+11d=14$ .....(1) $a+6d=4$ .....(2) $-\quad-\quad-\quad-\quad-\quad-$ $5d=10$ $d=2$ $a+6(2)=4$ $a=-8$	✓ both equations / *beide vergelykings* ✓ value of d / *waarde van d* ✓ value of a / *waarde van a* (3)
2.2.2	$T_n=-8+(n-1)(2)$ $=2n-10$ $2n-10=8$ $2n=18$ $n=9$ $T_9=8$, is the additive inverse of first term *is die optellingsinverse van die eerste term*	✓ Equating $T_n = 8$ / *Stel* $T_n = 8$ ✓ answer / *antwoord* (2)
2.3	$T_1=3\ ;\ T_2=7\ ;\ T_3=11 \Rightarrow d=4$ $T_{100}=399$ $S_n=\frac{n}{2}(a+l)$ $19995=\frac{101-k}{2}\left[(4k-1)+399\right]$ $39990=(101-k)(4k+398)$ $4k^2-6k-208=0$ $2k^2-3k-104=0$ $k=8 \quad or \quad k\neq-\frac{13}{2}$	✓ $T_1=4k-1$ & $T_{100}=399$ ✓ $n=101-k$ ✓ substitution / *vervanging* ✓ standard form / *standaardvorm* ✓ answer / *antwoord* (5)
		[21]

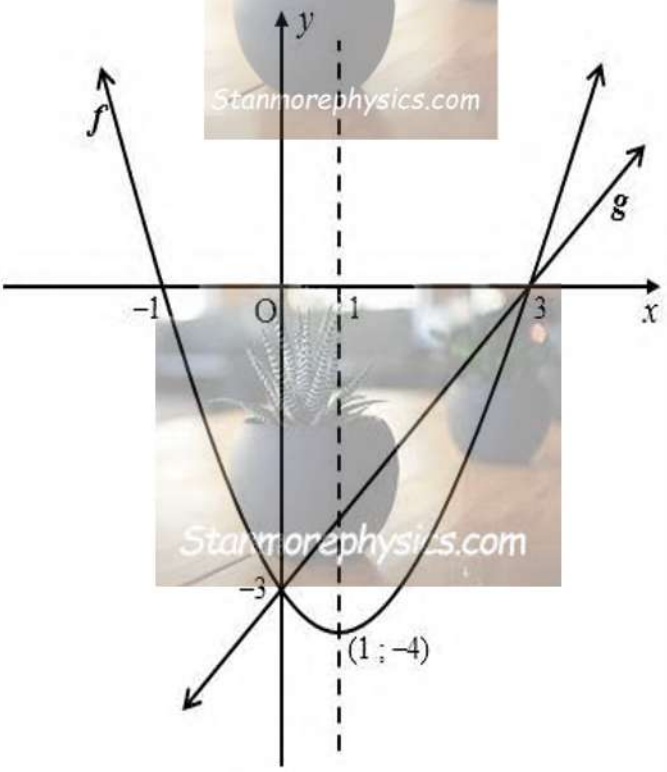
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QUESTION/*VRAAG 3*

3.1.1	**3 ; 12 ; 33 ; 66 ; T_5** **9 ; 21 ; 33 ; 45** **12 ; 12 ; 12** $T_5 = 111$	✓ 2nd difference / 2de *verskil* ✓ answer / *antwoord* (2)
3.1.2	$T_9 = 6(9)^2 - 9(9) + 6$ $= 411$ $T_9 - T_5 = 411 - 111$ $= 300$	✓ value of T_9 / *waarde van* T_9 ✓ answer / *antwoord* (2)
3.2	$T_n = an^2 + bn + 1$ $T_4 = 27 \Rightarrow 16a + 4b + 1 = 27$ $T_3 - T_2 = 8 \Rightarrow 5a + b = 8$ $20a + 4b = 32$ $16a + 4b = 26$ $4a = 6$ $a = \frac{3}{2}$ $5\left(\frac{6}{4}\right) + b = 8$ $b = 8 - \frac{15}{2}$ $b = \frac{1}{2}$	✓ $16a + 4b + 1 = 27$ ✓ $5a + b = 8$ ✓ method of solving / (elimination or substitution) *metode om op te los (eliminasie of vervanging)* ✓ value of a / *waarde van a* ✓ value of b / *waarde van b* (5)
		[9]

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QUESTION/*VRAAG 4*

4.1.1	$f(x) = x^2 - 2x - 3$ $y-\text{int}(x=0):\ y=-3$ $x-\text{int}(y=0):\ x^2-2x-3=0$ $x=3\ \ or\ \ x=-1$ $x=-\frac{b}{2a}=\frac{-(-2)}{2(1)}=1$ $y=(1)^2-2(1)-3=-4 \ \Rightarrow\ TP\,is\,(1;-4)$ $g(x)=x-3$ $x-\text{int}(y=0):\ y=-3$ $y-\text{int}(x=0):\ x=3$  	**Marks are awarded on sketch NOT for working** ***Punte word op skets toegeken NIE vir bewerkings NIE*** Graph of $f(x)$ / *Grafiek van* $f(x)$ ✓ x-intercepts / *x-afsnitte* ✓ y-intercept / *y-afsnit* ✓ turning point / *draaipunt* ✓ shape / *vorm* Graph of $g(x)$ / *Grafiek van* $g(x)$ ✓ x-intercept / *x-afsnit* ✓ y-intercept / *y-afsnit* (6)
4.1.2 (a)	$x<0\ \ or/of\ \ x>3$	✓ $x<0$ and/*en* ✓ $x>3$ (2)
4.1.2 (b)	$x\le -1$	✓✓ answer / *antwoord* (2)
4.1.3	Range of h / *Waardeversameling (Terrein) van* h : $y\le 0; y\in\mathbb{R}$	✓✓ answer / *antwoord* (2)

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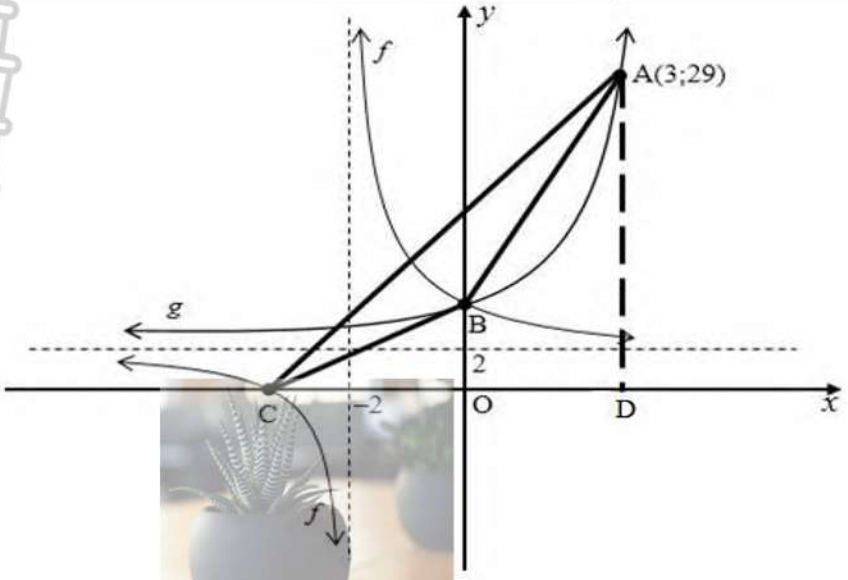
4.2	$-x+1=4$ $-x=3$ $x=-3 \quad \Rightarrow \quad A(-3;0)$	✓ A(−3;0)
	$y=a(x+p)^2+q$ $y=a(x-1)^2+8$ $0=a(-3-1)^2+8$ $-8=16a$ $-\frac{1}{2}=a$	✓ substitution of T/P and A / *vervanging van T/P en A* ✓ $a=-\frac{1}{2}$
	$\Rightarrow p(x)=-\frac{1}{2}(x-1)^2+8$	✓ answer / *antwoord* (4)
		[16]

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QUESTION/*VRAAG 5*

5.1	B(0 ; 3)	✓ answer / *antwoord* (1)
5.2	Range of / *Waardeversameling van* g : $y > 2; y \in \mathbb{R}$	✓ answer / *antwoord* (1)
5.3	$g(x) = b^x + 2$ $29 = b^3 + 2$ $3^3 = b^3$ $\therefore\ b = 3$	✓ substitution / *vervanging* ✓ answer / *antwoord* (2)
5.4	$\frac{2}{x+2} + 2 = 0$ $2 + 2x + 4 = 0$ $2x = -6$ $x = -3$	✓ equating to 0 / *gelyk stel aan* 0 ✓ answer / *antwoord* (2)
5.5	$h(x) = 3^x + 2 - 2$ $= 3^x$ $h^{-1}(x):\ x = 3^y$ $\therefore\ y = \log_3 x$	✓ $h(x) = 3^x$ ✓ swopping x and y / *omruil van x en y* ✓ answer / *antwoord* (3)
5.6	original axis of symmetry: *oorspronklikesimmetrie-as* $\boldsymbol{y = x}$ $\therefore \boldsymbol{y = (x + 2) + 2}$ $\boldsymbol{y = x + 4}$	✓ method / *metode* ✓ answer / *antwoord* (2)

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5.7	$-3 \leq x < -2$	✓✓ answer / *antwoord*	(2)
			
	$Area\ of\ \Delta ACD = \frac{1}{2}(6)(29) = 87\ units^2 / eenhede^2$ $Area\ of\ \Delta BCO = \frac{1}{2}(3)(3) = 4,5\ units^2 / eenhede^2$ $Area\ of\ Trap.BODA = \left(\frac{3+29}{2}\right) \times 3 = 48\ units^2 / eenhede^2$ $\therefore Area\ \Delta ABC = 87 - (4,5 + 48) = 34,5\ units^2 / eenhede^2$ **NOTE: There are many different alternative solutions to this question. Follow learner's solution and award marks accordingly.** ***LET WEL: Daar is baie verskillende alternatiewe oplossings vir hierdie vraag. Volg leerder se oplossing en ken punte dienooreenkomstig toe.***	✓ Area of Δ ACD / *oppervlakte van* Δ ACD ✓ Area of Δ BCO / *oppervlakte van* Δ BCO ✓ Area of Trapezium BODA / *Oppervlakte van Trapezium* BODA ✓ Area of Δ ABC / *oppervlakte van* Δ ABC	(4)
			[17]

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QUESTION/*VRAAG 6*

6.1.1	$1+i_{eff}=\left(1+\frac{i_{nom}}{m}\right)^{m}$ $=\left(1+\frac{6,5\%}{12}\right)^{12}$ $i_{eff}=\left(1+\frac{6,5\%}{12}\right)^{12}-1$ $=0,066971852...$ effective rate / *effektiewe koers* $=6,6972\%$ *p.a.*	✓ substitution / *vervanging* ✓ simplification / *vereenvoudiging* ✓ answer / *antwoord* (3)
6.1.2	$A=P(1+i)^{n}$ $=500\,000(1+6,6972\%)^{5}$ $=R691\,409,14$ **OR/*OF*** $A=P(1+i)^{n}$ $=500\,000\left(1+\frac{6,5\%}{12}\right)^{60}$ $=R691\,408,66$	✓ substitution / *vervanging* ✓ answer / *antwoord* (2) **OR/*OF*** ✓ substitution / *vervanging* ✓ answer / *antwoord* (2)
6.2	$A=P(1-i)^{n}$ $250\,000=800\,000(1-20,75\%)^{n}$ $\frac{5}{16}=\left(\frac{317}{400}\right)^{n}$ $\therefore\ n=\log_{\frac{317}{400}}\left(\frac{5}{16}\right)$ $n=5$ years / *jaar*	✓ substitution / *vervanging* ✓ simplification (correct use of Logs) / *vereenvoudiging (korrekte gebruik van Logs)* ✓ answer / *antwoord* (3)

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6.3	$A_1 = 650197\left(1+\frac{6{,}1\%}{12}\right)^{60} = R881392{,}29$ $A_2 = P(1+i)^n$ $2\,000\,000 = (881392{,}29+x)\left[1+\frac{7{,}47\%}{4}\right]^{20}$ $881392{,}29+x = 138\,292{,}32$ $x = R500\,000{,}00$	✓ substitution / *vervanging* ✓ answer / *antwoord* ✓ adding Rx / *by tel van Rx* ✓ substitution / *vervanging* ✓ simplification / *vereenvoudiging* ✓ answer / *antwoord* (6)
		[14]



QUESTION/*VRAAG 7*

		Penalise 1 mark for incorrect notation in 7.1 only ***Penaliseer 1 punt vir verkeerde notasie, slegs in 7.1***
7.1	$f'(x)=\lim\limits_{h\to 0}\dfrac{f(x+h)-f(x)}{h}$ $=\lim\limits_{h\to 0}\dfrac{(x+h)^2+(x+h)-(x^2+x)}{h}$ $=\lim\limits_{h\to 0}\dfrac{x^2+2xh+h^2+x+h-x^2-x}{h}$ $=\lim\limits_{h\to 0}\dfrac{2xh+h^2+h}{h}$ $=\lim\limits_{h\to 0}\dfrac{h(2x+h+1)}{h}$ $=\lim\limits_{h\to 0}(2x+h+1)$ $=2x+1$ Answer ONLY: 0 marks *SLEGS antwoord*: 0 *punte*	✓ substitution / *vervanging* ✓ $x^2+2xh+h^2+x+h$ ✓ simplification / *vereenvoudiging* ✓ factorisation / *faktorisering* (dividing by h / *deel deur h*) ✓ answer / *antwoord* (5)
7.2.1	$f(x)=3x^4-\dfrac{1}{2}x^{-2}$ $f'(x)=12x^3+x^{-3}$ $=12x^3+\dfrac{1}{x^3}$	✓ $12x^3$ ✓ x^{-3} (2)
7.2.2	$D_x\left[\dfrac{x+4}{\sqrt{x}}\right]$ $=D_x\left[\dfrac{x}{x^{\frac{1}{2}}}+\dfrac{4}{x^{\frac{1}{2}}}\right]$ $=D_x\left[x^{\frac{1}{2}}+4x^{-\frac{1}{2}}\right]$ $=\dfrac{1}{2}x^{-\frac{1}{2}}-2x^{-\frac{3}{2}}$	✓ $x^{\frac{1}{2}}$ ✓ $4x^{-\frac{1}{2}}$ ✓ $\dfrac{1}{2}x^{-\frac{1}{2}}$ ✓ $-2x^{-\frac{3}{2}}$ (4)
		[11]

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QUESTION/*VRAAG 8*

8.1	OA = 37 units/*eenhede*	✓ answer / *antwoord* (1)
8.2	$f(x)=2x^3-3x^2-cx+37$ $f(1)=2(1)^3-3(1)^2-c(1)+37=0$ $2-3-c+37=0$ $c=-36$	✓ substitution of 1 and equating to 0 / *vervanging van 1 en gelyk stel aan 0* ✓ answer / *antwoord* (2)
8.3	$f(x)=2x^3-3x^2-36x+37$ $f'(x)=6x^2-6x-36=0$ $x^2-x-6=0$ $(x+2)(x-3)=0$ $x=-2$ or / *of* $x=3$ $y=81$ or / *of* $y=-44$ $P(-2;81)$; $Q(3;-44)$	✓ $f'(x)$ ✓ $f'(x)=0$ ✓ x-values / *x-waardes* ✓ y-values / *y-waardes* (4)
8.4	$x\le -2$ or / *of* $x\ge 3$	✓✓ answer / *antwoord* (2)
8.5	$k<-81$ or / *of* $k>44$	✓✓ answer / *antwoord* (2)
8.6	$f''(x)=12x-6$ $f''(1)=12(1)-6$ $=6>0$ $\Rightarrow f$ is concave up / *konkaaf op* **OR/*OF*** $f''(x)=12x-6=0$ $x=\frac{1}{2}(x-\text{coordinate of p. o. i})$ $(x-koördinaatvanbuigpunt)$ ∴since B lies to the right of the p.o.i and a is +ve *omdat B regs van buigpunt lê en a is +ve* $\Rightarrow f$ is concave up at point B / *f is konkaaf op by punt B*	✓ f'' ✓ answer / *antwoord* ✓ conclusion / *gevolgtrekking* (3) **OR/*OF*** ✓ f'' ✓ answer / *antwoord* ✓ conclusion / *gevolgtrekking* (3)
		[14]

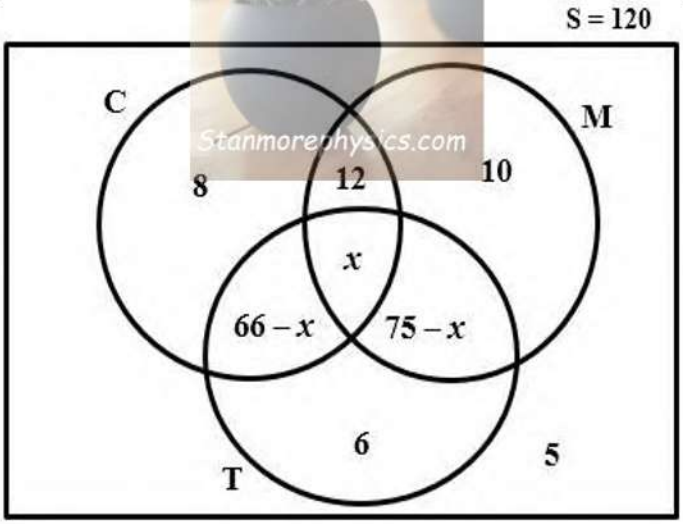
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QUESTION/*VRAAG 9*

9.1	$T.S.A = x^2 + 4xh$ $x^2 + 4xh = 300$ $h = \dfrac{300 - x^2}{4x}$	✓ $x^2 + 4xh = 300$ ✓ h in terms of x / h *in terme van* x
	$Volume = x \times x \times h$ $= x^2 \times \left(\dfrac{300 - x^2}{4x}\right)$ $= 75x - \dfrac{1}{4}x^3$	✓ substitution / *vervanging* ✓ answer / *antwoord*
	Maximum Volume / *Maksimum Volume*: $V'(x) = 75 - \dfrac{3}{4}x^2 = 0$ $-\dfrac{3}{4}x^2 = -75$ $x^2 = 100$ $x = 10 \quad ; \quad \because x > 0$	✓ $A'(x) = 0$ ✓ answer / *antwoord*
	$V = 75(10) - \dfrac{1}{4}(10)^3$ $= 750 - 250$ $= 500 \text{ units}^2$ / *eenhede*^{2}	✓ answer / *Antwoord* (7)
		[7]

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QUESTION 10/*VRAAG 10*

10.1.1	$P(A \text{ or / of } B) = P(A) + P(B)$ $0,52 = 0,4 + x$ $x = 0,12$	✓ substitution into correct formula / *vervanging in korrekte formule* ✓ answer / *antwoord* (2)
10.1.2	$P(A \text{ or / of } B) = P(A) + P(B) - P(A).P(B)$ $0,52 = 0,4 + x - 0,4x$ $0,6x = 0,12$ $x = 0,2$	✓ P(A and/*en* B) = P(A) x P(B) ✓ substitution into correct formula / *vervanging in korrekte formule* ✓ answer / *antwoord* (3)
10.2.1		✓ 5 ; 6 ; 8 ; 10 ✓ x ; $66 - x$; $75 - x$ ✓ 12 (3)
10.2.2	$8+12+10+x+66-x+75-x+6+5=120$ $182 - x = 120$ $x = 62$	✓ adding and equating / *optel en gelyk stel* ✓ answer / *antwoord* (2)
10.2.3	$P(C \text{ and / en } T) = \frac{66}{120}$	✓ answer / *antwoord* (1)
10.2.4	$P(\text{at least } 2 \text{ / ten minste } 2) = \frac{91}{120}$	✓ answer / *antwoord* (1)
10.2.5	$P(\text{not } C \text{ and not } T) = \frac{15}{120}$ $P(\text{nie } C \text{ en nie } T) = \frac{15}{120}$	✓✓ answer / *antwoord* (2)
		[14]

TOTAL/*TOTAAL:* 150

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