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**NATIONAL
SENIOR CERTIFICATE/
NASIONALE
SENIOR SERTIFIKAAT**

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.



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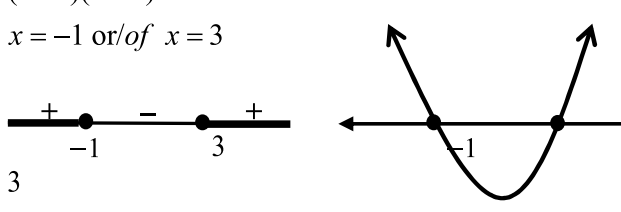
NOTE/LET WEL:

- 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 $x = -1$	OR/OF Answers only – Full Marks Slegs antwoorde – Volpunte	✓ factors / faktore ✓ both answers / beide antwoorde ✓ 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 afroning.	✓ standard form / standaardvorm ✓ substitution / vervanging ✓✓ x-values / x-waardes (4)



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



1.2	$x + y = 3 \dots\dots\dots (1)$ $x^2 + 2y^2 = 18 \dots\dots (2)$ From/Vanaf (1): $y = -x + 3 \dots\dots\dots (3)$ (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 $y = -1$	$\checkmark y = -x + 3$ $\checkmark$ substitution / <i>vervanging</i> $\checkmark$ standard form / <i>standaardvorm</i> $\checkmark$ x-values / <i>waardes</i> $\checkmark$ y-values / <i>waardes</i> (5)
1.3	$(\sqrt{5})^x - (\sqrt[3]{2})^y = 17$ $(5)^{\frac{1}{2}x} - (2)^{\frac{1}{3}y} = 25 - 8$ $(5)^{\frac{1}{2}x} - (2)^{\frac{1}{3}y} = 5^2 - 2^3$ $\therefore \frac{1}{2}x = 2$ and/en $\frac{1}{3}y = 3$ $\Rightarrow x = 4$ and/en $y = 9$ $P = (4 \times 9) = 36$	$\checkmark$ converting to exponential form / <i>herlei na eksponensiale vorm</i> $\checkmark 17 = 25 - 8$ $\checkmark$ equating exponents / <i>gelykstel van eksponente</i> $\checkmark$ answer / <i>antwoord</i> (4)
		[27]



QUESTION/VRAAG 2

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



2.1.4	Series of ONE diagonal / <i>Reeks van EEN hoeklyn</i>: $6\sqrt{2} + 6 + 3\sqrt{2} + 3 + \dots$ $\Rightarrow r = \frac{1}{\sqrt{2}}$ $S_n = \frac{a(1-r^n)}{1-r}$ $= \frac{6\sqrt{2}\left(1-\left(\frac{1}{\sqrt{2}}\right)^{10}\right)}{1-\frac{1}{\sqrt{2}}}$ $= 28,07 \text{ units / eenhede}$ $\therefore$ there are two diagonals: $\therefore$ <i>daar twee hoeklyne is</i>: $\Rightarrow 2 \times 28,07 = 56,14 \text{ units / eenhede}$ OR/OF Series of TWO diagonals / <i>Reeks van TWEE hoeklyne</i>: $12\sqrt{2} + 12 + 6\sqrt{2} + 6 + \dots$ $\Rightarrow r = \frac{1}{\sqrt{2}}$ $S_n = \frac{a(1-r^n)}{1-r}$ $= \frac{12\sqrt{2}\left(1-\left(\frac{1}{\sqrt{2}}\right)^{10}\right)}{1-\frac{1}{\sqrt{2}}}$ $= 56,13 \text{ units / eenhede}$	✓ diagonal series / <i>hoeklyn reeks</i> $\checkmark \quad r = \frac{1}{\sqrt{2}}$ ✓ substitution / <i>vervanging</i> ✓ answer / <i>antwoord</i> OR/OF ✓ diagonal series / <i>hoeklyn reeks</i> $\checkmark \quad r = \frac{1}{\sqrt{2}}$ ✓ substitution / <i>vervanging</i> ✓ answer / <i>antwoord</i> (4)
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2.2.1	$a + 11d = 14 \dots\dots\dots(1)$ $a + 6d = 4 \dots\dots\dots(2)$ ----- $5d = 10$ $d = 2$ $a + 6(2) = 4$ $a = -8$	✓ both equations / <i>beide vergelykings</i> ✓ value of d / <i>waarde van d</i> ✓ value of a / <i>waarde van a</i> (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 <i>is die optellingsinverses van die eerste term</i>	✓ Equating $T_n = 8$ / <i>Stel $T_n = 8$</i> ✓ answer / <i>antwoord</i> (2)
2.3	$T_1 = 3 ; T_2 = 7 ; T_3 = 11 \Rightarrow d = 4$ $T_{100} = 399$ $S_n = \frac{n}{2}(a + l)$ $19995 = \frac{101-k}{2}[(4k-1) + 399]$ $39990 = (101-k)(4k+398)$ $4k^2 - 6k - 208 = 0$ $2k^2 - 3k - 104 = 0$ $k = 8 \text{ or } k \neq -\frac{13}{2}$	✓ $T_1 = 4k - 1$ & $T_{100} = 399$ ✓ $n = 101 - k$ ✓ substitution / <i>vervanging</i> ✓ standard form / <i>standaardvorm</i> ✓ answer / <i>antwoord</i> (5)
		[21]

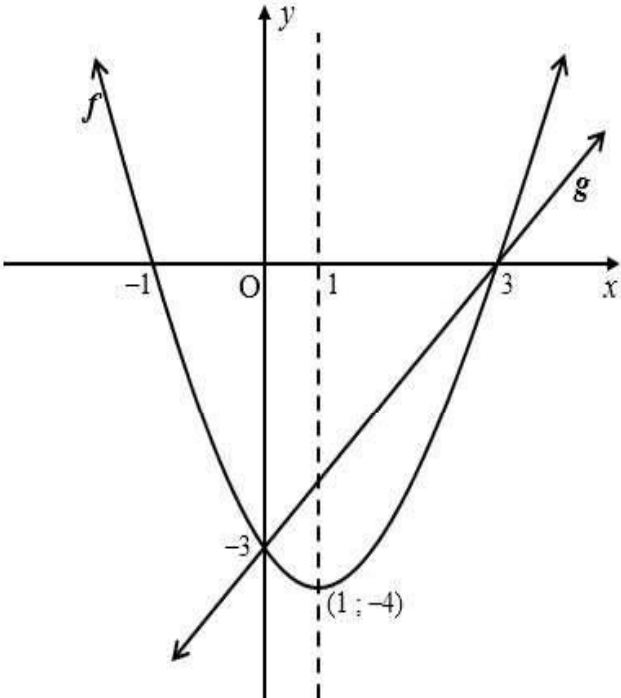


QUESTION/VRAAG 3

3.1.1	$\begin{array}{ccccccc} 3 & ; & 12 & ; & 33 & ; & 66 & ; & T_5 \\ & & 9 & ; & 21 & ; & 33 & ; & 45 \\ & & & & 12 & ; & 12 & ; & 12 \end{array}$ $T_5 = 111$	✓ 2 nd difference / 2 ^{de} 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) <i>metode om op te los</i> <i>(eliminatie of vervanging)</i> ✓ value of a / waarde van a ✓ value of b / waarde van b (5)
		[9]



QUESTION/VRAAG 4

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



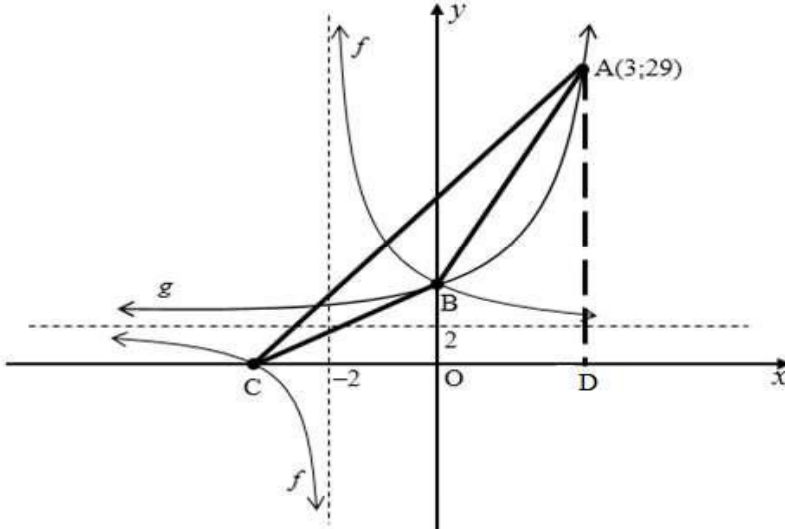
4.2	$-x + 1 = 4$ $-x = 3$ $x = -3 \Rightarrow A(-3; 0)$ $y = a(x + p)^2 + q$ $y = a(x - 1)^2 + 8$ $0 = a(-3 - 1)^2 + 8$ $-8 = 16a$ $-\frac{1}{2} = a$ $\Rightarrow p(x) = -\frac{1}{2}(x - 1)^2 + 8$	$\checkmark A(-3; 0)$ $\checkmark$ substitution of T/P and A / <i>vervanging van T/P en A</i> $\checkmark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



QUESTION/VRAAG 5

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



5.7	$-3 \leq x < -2$	✓✓ answer / antwoord (2)
		
	Area of $\Delta ACD = \frac{1}{2}(6)(29) = 87 \text{ units}^2 / \text{eenhede}^2$ Area of $\Delta BCO = \frac{1}{2}(3)(3) = 4,5 \text{ units}^2 / \text{eenhede}^2$ Area of Trap. BODA = $\left(\frac{3+29}{2}\right) \times 3 = 48 \text{ units}^2 / \text{eenhede}^2$ $\therefore \text{Area } \Delta ABC = 87 - (4,5 + 48) = 34,5 \text{ units}^2 / \text{eenhede}^2$ 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 ΔACD / oppervlakte van ΔACD ✓ Area of ΔBCO / oppervlakte van ΔBCO ✓ Area of Trapezium BODA / Oppervlakte van Trapezium BODA ✓ Area of ΔABC / oppervlakte van ΔABC (4)
		[17]



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 / <i>effektiewe koers</i> = 6,6972% p.a.	✓ substitution / <i>vervang</i> ✓ simplification / <i>vereenvoudiging</i> ✓ answer / <i>antwoord</i> (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 / <i>vervang</i> ✓ answer / <i>antwoord</i> (2) OR/OF ✓ substitution / <i>vervang</i> ✓ answer / <i>antwoord</i> (2)
6.2	$A = P(1-i)^n$ $250\,000 = 800\,000(1 - 20,75\%)^n$ $\frac{5}{16} = \left(\frac{317}{400}\right)^n$ $\therefore n = \log_{\frac{317}{400}}\left(\frac{5}{16}\right)$ $n = 5 \text{ years / jaar}$	✓ substitution / <i>vervang</i> ✓ simplification (correct use of Logs) / <i>vereenvoudiging (korrekte gebruik van Logs)</i> ✓ answer / <i>antwoord</i> (3)



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 / <i>vervanging</i> ✓ answer / <i>antwoord</i> ✓ adding Rx / <i>by tel van Rx</i> ✓ substitution / <i>vervanging</i> ✓ simplification / <i>vereenvoudiging</i> ✓ answer / <i>antwoord</i>
		(6)
		[14]



QUESTION/VRAAG 7

		Penalise 1 mark for incorrect notation in 7.1 only <i>Penaliseer 1 punt vir verkeerde notasie, slegs in 7.1</i>
7.1	$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $= \lim_{h \rightarrow 0} \frac{(x+h)^2 + (x+h) - (x^2 + x)}{h}$ $= \lim_{h \rightarrow 0} \frac{x^2 + 2xh + h^2 + x + h - x^2 - x}{h}$ $= \lim_{h \rightarrow 0} \frac{2xh + h^2 + h}{h}$ $= \lim_{h \rightarrow 0} \frac{h(2x + h + 1)}{h}$ $= \lim_{h \rightarrow 0} (2x + h + 1)$ $= 2x + 1$ 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	$f(x) = 3x^4 - \frac{1}{2}x^{-2}$ $f'(x) = 12x^3 + x^{-3}$ $= 12x^3 + \frac{1}{x^3}$	✓ $12x^3$ ✓ x^{-3} (2)
7.2.2	$D_x \left[\frac{x+4}{\sqrt{x}} \right]$ $= D_x \left[\frac{x}{x^{\frac{1}{2}}} + \frac{4}{x^{\frac{1}{2}}} \right]$ $= D_x \left[x^{\frac{1}{2}} + 4x^{-\frac{1}{2}} \right]$ $= \frac{1}{2}x^{-\frac{1}{2}} - 2x^{-\frac{3}{2}}$	✓ $x^{\frac{1}{2}}$ ✓ $4x^{-\frac{1}{2}}$ ✓ $\frac{1}{2}x^{-\frac{1}{2}}$ ✓ $-2x^{-\frac{3}{2}}$ (4)
		[11]



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	$x \leq -2$ or / of $x \geq 3$	✓✓ 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 / <i>konkaaf op</i> OR/OF $f''(x) = 12x - 6 = 0$ $x = \frac{1}{2}(x - \text{coordinate of p.o.i})$ $(x - \text{koördinaat van buigpunt})$ $\therefore$ 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 / <i>f is konkaaf op by punt B</i>	✓ f'' ✓ answer / antwoord ✓ conclusion / gevolgtrekking (3) OR/OF ✓ f'' ✓ answer / antwoord ✓ conclusion / gevolgtrekking (3)
		[14]

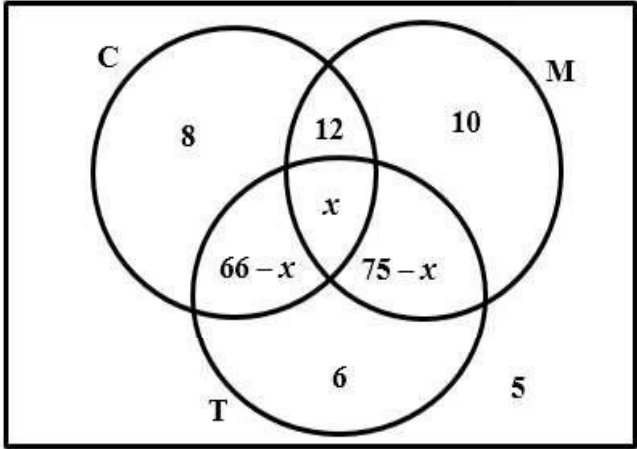


QUESTION/VRAAG 9

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



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 / <i>vervang in korrekte formule</i> ✓ answer / <i>antwoord</i> (2)
10.1.2	$P(A \text{ or / of } B) = P(A) + P(B) - P(A).P(B)$ $0,52 = 0,4 + x - 0,4x$ $0,6x = 0,12$ $x = 0,2$	✓ $P(A \text{ and/en } B) = P(A) \times P(B)$ ✓ substitution into correct formula / <i>vervang in korrekte formule</i> ✓ answer / <i>antwoord</i> (3)
10.2.1	$S = 120$ 	✓ 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 / <i>optel en gelyk stel</i> ✓ answer / <i>antwoord</i> (2)
10.2.3	$P(C \text{ and / en } T) = \frac{66}{120}$	✓ answer / <i>antwoord</i> (1)
10.2.4	$P(\text{at least 2 / ten minste 2}) = \frac{91}{120}$	✓ answer / <i>antwoord</i> (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 / <i>antwoord</i> (2)
		[14]

TOTAL/TOTAAL: 150

