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**NATIONAL
SENIOR CERTIFICATE/
NASIONALE
SENIOR SERTIFIKAAT**

GRADE/*GRAAD* 12

JUNE/*JUNIE* 2026

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

MARKS/*PUNTE*: 150



This marking guideline consists of 19 pages.
Hierdie nasienriglyn bestaan uit 19 bladsye.

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**NOTE/LET WEL:**

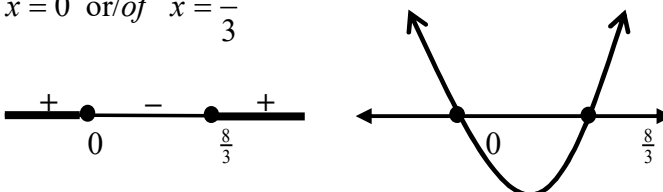
- If a candidate answered a question TWICE, mark the FIRST attempt ONLY.
Indien 'n kandidaat 'n vraag TWEE keer beantwoord, merk SLEGS die EERSTE poging.
- Consistent accuracy(CA) applies in ALL aspects of the marking guideline.
Volgehoue akkuraatheid geld deurgaans in ALLE aspekte van die nasienriglyn.
- 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/VRAAG 1

1.1.1	$x(x-3) + 2(x-3) = 0$ $(x-3)(x+2) = 0$ $x-3 = 0$ or/of $x+2 = 0$ $x = 3$ or/of $x = -2$	Answers only – Full Marks Slegs antwoorde - Volpunte	✓ factors / <i>faktore</i> ✓ both answers / <i>beide antwoorde</i> (2)
1.1.2	$3x^2 - 5x - 4 = 0$ $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ $x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(3)(-4)}}{2(3)}$ $x = \frac{5 \pm \sqrt{73}}{6}$ $\therefore x = -0,59$ or / of $x = 2,26$	Penalise 1 mark for incorrect rounding off./ Penaliseer 1 punt vir verkeerde afronding.	✓ substitution / <i>vervanging</i> ✓✓ <i>x-values / x-waardes</i> (3)





1.1.3	$3x^2 - 8x \geq 0$ $x(3x - 8) \geq 0$ critical values/kritieke waardes $x = 0 \text{ or/of } x = \frac{8}{3}$  $x \leq 0 \text{ or/of } x \geq \frac{8}{3}, x \in \mathbf{R}$ OR/OF $x \in (-\infty; 0] \text{ or/of } x \in [\frac{8}{3}; \infty), x \in \mathbf{R}$	✓ factors / <i>faktore</i> ✓ critical values / <i>kritieke waardes</i> ✓✓ $x \leq 0 \text{ or/of } x \geq \frac{8}{3}, x \in \mathbf{R}$ (accuracy / <i>akkuraatheid</i>) OR/OF $x \in (-\infty; 0] \text{ or/of } x \in [\frac{8}{3}; \infty), x \in \mathbf{R}$ (4)
1.1.4	$\frac{3}{2x} = \sqrt{\frac{6}{x}} - 1$ $\frac{3}{2x} + 1 = \sqrt{\frac{6}{x}}$ $\left(\frac{3}{2x} + 1\right)^2 = \left(\sqrt{\frac{6}{x}}\right)^2$ $\frac{9}{4x^2} + \frac{3}{x} + 1 = \frac{6}{x}$ $9 + 12x + 4x^2 = 24x$ $4x^2 - 12x + 9 = 0$ $(2x - 3)(2x - 3) = 0$ $\therefore x = \frac{3}{2}$	✓ isolating surd / <i>isoleer wortelvorm</i> ✓ idea of squaring both sides / <i>idee om albei kante te kwadreer</i> ✓ actual squaring / <i>kwadrering</i> ✓ standard form / <i>standaardvorm</i> ✓ answer / <i>antwoord</i> (5)





1.2	$y = 3x - 1$(1) $x^2 + 2xy = 3y^2 - 7$(2) (1) into/in (2) : $x^2 + 2x(3x - 1) = 3(3x - 1)^2 - 7$ $x^2 + 6x^2 - 2x = 27x^2 - 18x + 3 - 7$ $20x^2 - 16x - 4 = 0$ $5x^2 - 4x - 1 = 0$ $(5x + 1)(x - 1) = 0$ $5x + 1 = 0$ or / of $x - 1 = 0$ $x = -\frac{1}{5}$ or / of $x = 1$ $y = -\frac{8}{5}$ or / of $y = 2$	✓ $y = 3x - 1$ ✓ substitution / <i>vervanging</i> ✓ expanding / <i>uitbreiding</i> ✓ standard form / <i>standaardvorm</i> ✓ x-values / <i>waardes</i> ✓ y-values / <i>waardes</i> (6)
1.3	$x + y = 4$ $x^2 + 2xy + y^2 = 16$ $x^2 + y^2 = 14$(1) $x^3 + y^3 = (x + y)(x^2 - xy + y^2)$ $= (4)(14 - 1)$ $= 52$ OR / OF $(x + y)^3 = (4)^3$ $(x + y)(x^2 + 2xy + y^2) = 64$ $x^3 + 3x^2y + 3xy^2 + y^3 = 64$ $x^3 + y^3 + 3xy(x + y) = 64$ $x^3 + y^3 + 3(1)(4) = 64$ $x^3 + y^3 = 52$	✓ square both sides / <i>kwadreer beide kante</i> ✓ $x^2 + y^2 = 14$ ✓ sum of cubes factors / <i>som van derdemagte faktore</i> ✓ answer / <i>antwoord</i> (4) OR / OF ✓ cube both sides / <i>derdemag beide kante</i> ✓ expansion / <i>uitbreiding</i> ✓ grouping / <i>groepering</i> ✓ answer / <i>antwoord</i> (4) [24]



QUESTION/VRAAG 2



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2.1.1	$\frac{p}{p+3} = \frac{p-2}{p}$ $p^2 = p^2 + p - 6$ $\therefore p = 6$	✓ equating ratios / gelykstel van verhoudings ✓ simplification / vereenvoudiging ✓ answer / antwoord (3)
2.1.2	$9; 6; 4; \dots$ $r = \frac{2}{3}$ $\therefore -1 < \frac{2}{3} < 1$	✓ value of r / waarde van r ✓ reason / rede (2)
2.1.3	$S_{\infty} = \frac{a}{1-r}$ $= \frac{9}{1-\frac{2}{3}}$ $= 27$	✓ substitution / vervanging ✓ answer / antwoord (2)
2.2.1	$2 \cdot 3^{n-1} = 13122$ $3^{n-1} = 6561 = 3^8$ $\therefore n-1 = 8$ $n = 9$ $\therefore \sum_{n=1}^9 2 \cdot (3)^{n-1}$	✓ equating / geslykstelling ✓ value of n / waarde van n ✓ answer / antwoord (3)
2.2.2	$S_n = \frac{a(r^n - 1)}{r - 1}$ $= \frac{2(3^9 - 1)}{3 - 1}$ $= 19682$	✓ substitution / vervanging ✓ answer / antwoord (2)
		[12]



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QUESTION/VRAAG 3

3.1.1	$T_2 = 4$ and / en $T_3 = 13$	✓ 1st differences / 1^{ste} verskille ✓ answer / antwoord (2)
3.1.2	$\begin{array}{lll} 2a = 6 & 3a + b = 3 & a + b + c = 1 \\ a = 3 & 3(3) + b = 3 & 3 - 6 + c = 1 \\ & b = -6 & c = 4 \end{array}$ $\therefore T_n = 3n^2 - 6n + 4$	✓ value of a / waarde van a ✓ value of b / waarde van b ✓ value of c / waarde van c (3)
3.2	$12 - d ; 12 ; 12 + d$ Applying Pythagoras : $(12 + d)^2 = (12)^2 + (12 - d)^2$ $144 + 24d + d^2 = 144 + 144 - 24d + d^2$ $48d = 144$ $d = 3$ $\therefore$ short side = 9 $\therefore$ hypotenuse = 15	✓ sequence in terms of d / ry in terme van d ✓ use of Pythagoras / gebruik van Pythagoras ✓ value of d / waarde van d ✓ answers / antwoorde (4)





3.3	$\sum_{p=5}^{20} (p+1)^2 - \sum_{p=5}^{20} (p^2)$ $= (6^2 + 7^2 + \dots + 21^2) - (5^2 + 6^2 + \dots + 20^2)$ $= 21^2 - 5^2$ $= 416$ OR / OF $\sum_{p=5}^{20} (p+1)^2 - \sum_{p=5}^{20} (p^2)$ $= \sum_5^{20} (2p+1)$ $= 11 + 13 + 15 + \dots + 41$ $\therefore S_{16} = \frac{16}{2}(11+41)$ $= 416$ OR / OF $36 + 49 + 64 + \dots + 441$ $S_{16} = \frac{16}{2}(36 + 441) = 3816$ $25 + 36 + 49 + \dots + 400$ $S_{16} = \frac{16}{2}(25 + 400) = 3400$ $3816 - 3400$ $= 416$	✓ expanding / <i>uitbreiding</i> ✓ expanding / <i>uitbreiding</i> ✓ simplification / <i>vereenvoudiging</i> ✓ answer / <i>antwoord</i> OR / OF ✓ combining Sigma notation <i>kombineer Sigma notasie</i> ✓ expanding / <i>uitbreiding</i> ✓ substitution / <i>vervanging</i> ✓ answer / <i>antwoord</i> OR / OF ✓ expanding / <i>uitbreiding</i> ✓ expanding / <i>uitbreiding</i> ✓ both sums / <i>beide somme</i> ✓ answer / <i>antwoord</i> (4) [13]
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QUESTION/VRAAG 4

4.1	$x \neq 4; x \in \mathbb{R}$	✓ answer / <i>antwoord</i> (1)
4.2	$y = 3$	✓ answer / <i>antwoord</i> (1)
4.3	$f(0) = \frac{6}{0-4} + 3$ $= \frac{3}{2}$ $\frac{6}{x-4} + 3 = 0$ $6 = -3x + 12$ $3x = 6$ $x = 2$	✓ answer / <i>antwoord</i> ✓ $y = 0$ ✓ answer / <i>antwoord</i> (3)
4.4		✓ x- & y-intercepts <i>x- & y-afsnitte</i> ✓ asymptotes / <i>asimptote</i> ✓ shape / <i>vorm</i> (3)
4.5	$2 \leq x < 4$	✓✓ answer / <i>antwoord</i> (2)
		[10]





QUESTION/VRAAG 5

5.1.1	$x = \frac{-b}{2a}$ $= \frac{-8}{2(-2)}$ $= 2$ $y = -2(2)^2 + 8(2) + 10$ $= 18$ $A(2 ; 18)$	✓ x-value / x-waarde ✓ y-value / y-waarde (2)
5.1.2	$-2x^2 + 8x + 10 = 0$ $(-2x + 10)(x + 1) = 0$ $x = 5 \text{ or / of } x = -1$ $\therefore BC = 6 \text{ units / eenhede}$	✓ equating to 0 / gelyk stel aan 0 ✓ x-intercepts / x-afsnitte ✓ answer / antwoord (3)
5.2	$m_g = \frac{-14 - 0}{6 + 1} = -2$ $m = \frac{-14 - 0}{6 + 1} = -2$ $y - 0 = -2(x + 1)$ OR/OF $y = -2x + c$ $y = -2x - 2$ $0 = 2(-1) + c$ $c = -2$ $\therefore y = -2x - 2$	✓ gradient / gradiënt ✓ equation / vergelyking (2)





5.3	$f'(x) = -4x + 8 = -8$ $-4x = -16$ $x = 4$ $y = -2(4)^2 + 8(4) + 10$ $= 10$ $y = -8x + k$ $10 = -8(4) + k$ $k = 42$ OR/OF $-2x^2 + 8x + 10 = -8x + k$ $-2x^2 + 16x + 10 - k = 0$ tangent with one real root: / raaklyn met een reële wortel (equal roots) / (gelyke wortels) $b^2 - 4ac = 0$ $(16)^2 - 4(-2)(10 - k) = 0$ $256 + 8(10 - k) = 0$ $256 + 80 - 8k = 0$ $-8k = -336$ $k = 42$ $\therefore h(x) = -8x + 42$	✓ equating f' to -8 / stel f' gelyk aan -8 ✓ $x = 4$ and/en $y = 10$ ✓ substituting point / vervanging van punt ✓ answer / antwoord OR/OF ✓ equating f to h / stel f gelyk aan h ✓ standard form / standaardvorm ✓ substitution into delta / vervanging in delta ✓ answer / antwoord (4)
5.4	$f(x) = -2(x+1)^2 + 8(x+1) + 10$ $= -2x^2 - 4x - 2 + 8x + 8 + 10$ $= -2x^2 + 4x + 16$ OR/OF $A(2;18) \text{ and/en } a = -2$ $f(x) = -2(x-2)^2 + 18$ $f(x+1) = -2(x+1-2)^2 + 18$ $= -2(x-1)^2 + 18$	✓ replace x with $(x+1)$ vervang x met $(x+1)$ ✓ answer / antwoord OR/OF ✓ replace x with $(x+1)$ vervang x met $(x+1)$ ✓ answer / antwoord (2)





5.5	$p > 11$	✓✓ answer / antwoord (2)
Few approaches for teaching and learning / Paar benaderings vir onderrig en leer Option 1 / Opsie 1 $x = -\frac{8}{2(-2)} = 2$ $y = -(2)^2 + 8(2) + 3$ $= 11$ T.P(2;11) $\therefore p > 11$ $y = p$ $y = 11$ $y = -2x^2 + 8x + 3$ Option 2 / Opsie 2 $-2x^2 + 8x + 3 = p$ $-2x + 8x + 10 = p + 7$ For non-real : $p + 7 > 18$ $\therefore p > 11$ $y = p + 7$ $y = 18$ $f(x) = -2x^2 + 8x + 10$ Option 3 / Opsie 3 $-2x^2 + 8x + 3 - p = 0$ For non-real: / Vir nie - reël: $b^2 - 4ac < 0$ $(8)^2 - 4(-2)(3 - p) < 0$ $64 + 24 - 8p < 0$ $-8p < -88$ $\therefore p > 11$		
		[15]





QUESTION/VRAAG 6

6.1	$y = \log_a x$ $-1 = \log_a \left(\frac{1}{2} \right)$ $\frac{1}{a} = \frac{1}{2}$ $\therefore a = 2$	✓ substitution / <i>vervang</i> ✓ answer / <i>antwoord</i> (2)
6.2	$f : y = \log_2 x$ $f^{-1} : x = \log_2 y$ $\therefore y = 2^x$	✓ swapping x and y / <i>omruil van x en y</i> ✓ answer / <i>antwoord</i> (2)
6.3.1	$g(x) = -\log_2 x$ OR/OF $g(x) = \log_{\frac{1}{2}} x$	✓ answer / <i>antwoord</i> (1)
6.3.2	decreasing / <i>dalend</i>	✓ answer / <i>antwoord</i> (1)
6.4	$0 < x < \frac{1}{2}$	✓✓ answer / <i>antwoord</i> (2)
		[8]



QUESTION/VRAAG 7



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7.1	$A = P(1+i)^{12n}$ $10\,000 = 5\,000 \left(1 + \frac{9\%}{12}\right)^{12n}$ $2 = (1,0075)^{12n}$ $\therefore 12n = \log_{1,0075}(2)$ $12n = 92,76 \text{ months / maande}$ $n = 7,73 \text{ years / jare}$	✓ substitution / vervanging ✓ simplification / vereenvoudiging ✓ use of logs / gebruik van logs ✓ answer / antwoord	(4)
7.2	$1 + i_{\text{eff}} = \left(1 + \frac{i_{\text{nom}}}{m}\right)^m$ $1 + 12,13\% = \left(1 + \frac{i_{\text{nom}}}{12}\right)^{12}$ $\sqrt[12]{(1 + 12,13\%)} = 1 + \frac{i_{\text{nom}}}{12}$ $\therefore i_{\text{nom}} = 12 \left(\sqrt[12]{(1 + 12,13\%)} - 1\right)$ $= 0,11503662039$ $\Rightarrow \text{nominal rate} = 11,50 \text{ p.a compounded monthly}$ $\text{nominale koers} = 11,50 \text{ p.j maandeliks saamgestel}$	✓ substitution / vervanging ✓ subject of the formula / onderwerp van die formule ✓ answer / antwoord	(3)
7.3.1	$A = P(1+i)^n$ $= 20\,000 \left(1 + \frac{7,2\%}{4}\right)^8$ $= R\,23068,12$	✓ substitution / vervanging ✓ answer / antwoord	(2)
7.3.2	$A = \left[23\,068,12 \left(1 + \frac{7,8\%}{12}\right)^{24} - x\right] \left(1 + \frac{7,8\%}{12}\right)^{36}$ $30\,871,61 = 23\,068,12 \left(1 + \frac{7,8\%}{12}\right)^{60} - x \left(1 + \frac{7,8\%}{12}\right)^{36}$ $x \left(1 + \frac{7,8\%}{12}\right)^{36} = 23\,068,12 \left(1 + \frac{7,8\%}{12}\right)^{60} - 30\,871,61$ $x = \frac{23\,068,12 \left(1 + \frac{7,8\%}{12}\right)^{60} - 30\,871,61}{\left(1 + \frac{7,8\%}{12}\right)^{36}}$ $x = R\,2\,500,00$	✓ $23\,068,12 \left(1 + \frac{7,8\%}{12}\right)^{24}$ ✓ multiply by $\left(1 + \frac{7,8\%}{12}\right)^{36}$ ✓ expanding / uitbreiding ✓ x subject of the formula / x onderwerp van die formule ✓ answer / antwoord	(5)
			[14]



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QUESTION/VRAAG 8

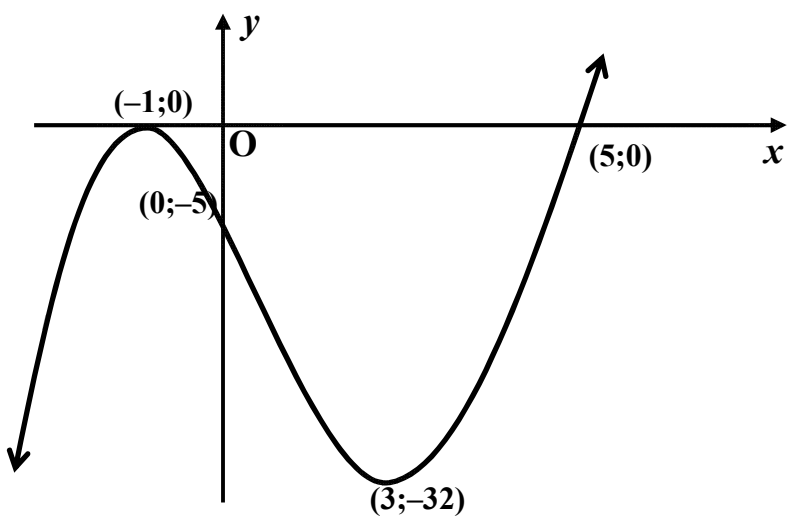
Penalise 1 mark for incorrect notation in 8.1 only
 Penaliseer 1 punt vir verkeerde notasie, slegs in 8.1

8.1	$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ $= \lim_{h \rightarrow 0} \frac{5(x+h)^2 + 1 - (5x^2 + 1)}{h}$ $= \lim_{h \rightarrow 0} \frac{5x^2 + 10xh + 5h^2 + 1 - 5x^2 - 1}{h}$ $= \lim_{h \rightarrow 0} \frac{10xh + 5h^2}{h}$ $= \lim_{h \rightarrow 0} \frac{h(10x + 5h)}{h}$ $= \lim_{h \rightarrow 0} (10x + 5h)$ $= 10x$	✓ substitution / vervanging ✓ simplification / vereenvoudiging ✓ factorisation / faktorisering (dividing by h / deel deur h) ✓ answer / antwoord (4)
8.2.1	$\frac{dy}{dx} = 6x^2 - \frac{1}{5}$	✓ $6x^2$ ✓ $\frac{1}{5}$ (2)
8.2.2	$D_x \left[\frac{\sqrt{x^5 + 5}}{x^2} \right]$ $= D_x \left[\frac{x^{\frac{5}{2}}}{x^2} + \frac{5}{x^2} \right]$ $= D_x \left[x^{\frac{1}{2}} + 5x^{-2} \right]$ $= \frac{1}{2}x^{-\frac{1}{2}} - 10x^{-3}$	✓ $x^{\frac{1}{2}}$ ✓ $5x^{-2}$ ✓ $\frac{1}{2}x^{-\frac{1}{2}}$ ✓ $-10x^{-3}$ (4)
8.3	$h(-1) = 3(-1)^2 + 4(-1)$ $= -1$ $T(-1; -1)$ $m = f'(-1) = 6(-1) + 4 = -2$ $y + 1 = -2(x + 1)$ $y = -2x - 3$	✓ coordinates of T / koördinate van T ✓ derivative = $6x + 4$/ afgeleide = $6x + 4$ ✓ $m = -2$ ✓ substitution of $m = -2$ # point(-1; -1) ✓ answer / antwoord (5)





QUESTION/VRAAG 9

9.1	$f(x) = x^3 - 3x^2 - 9x - 5$ $f(-1) = (-1)^3 - 3(-1)^2 - 9(-1) - 5$ $= -1 - 3 + 9 - 5$ $= 0$ $\therefore (x + 1)$ is a factor. / is 'n faktor	✓ substitution of -1 and getting to 0 / vervanging van -1 en kry gelyk aan 0	(1)
9.2	y-int: (let $x = 0$) $\Rightarrow y = -5$ x-ints: (let $y = 0$): $f(x) = x^3 - 3x^2 - 9x - 5 = 0$ $(x + 1)(x^2 - 4x - 5) = 0$ $(x + 1)(x + 1)(x - 5) = 0$ $\therefore x = -1$ or / of $x = -1$ or / of $x = 5$	✓ y-intercept / y-afsnit ✓ quadratic bracket / kwadratiese hakkie ✓ x-intercepts / x-afsnitte	(3)
9.3	$f(x) = x^3 - 3x^2 - 9x - 5$ $f'(x) = 3x^2 - 6x - 9 = 0$ $x^2 - 2x - 3 = 0$ $(x + 1)(x - 3) = 0$ $x = -1$ or / of $x = 3$ $y = 0$ or / of $y = -32$ $P(-1; 0)$; $Q(3; -32)$	✓ $f'(x) = 0$ ✓ x-values / x-waardes ✓ y-values / y-waardes	(3)
9.4		✓ x- and y- intercepts x- en y- afsnitte ✓ turning points / draaipunte ✓ shape / vorm	(3)





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9.5.1	$x < -1$ or / of $x > 3$ Accept/Aanvaar: $x \leq -1$ or / of $x \geq 3$	✓✓ answer / antwoord (2)
9.5.2	$f''(x) > 0$ $6x - 6 > 0$ $6x > 6$ $\therefore x > 1$ OR / OF $x = \frac{-1+3}{2} = 1$ $\therefore x > 1$ OR / OF $x > 1$ (answer only / slegs antwoord)	✓ method / metode ✓ answer / antwoord OR / OF ✓ method / metode ✓ answer / antwoord OR / OF ✓✓ answer / antwoord (2)
9.5.3	$-1 < x < 3$ or / of $x > 5$	✓✓ answer / antwoord (2)
		[16]



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QUESTION/VRAAG 10

10.	$d = 0$ (h passes through origin / <i>h gaan deur oorsprong</i>) $\therefore h(x) = -x^3 + bx^2 + cx$ $-\frac{7}{2} = -(-1)^3 + b(-1)^2 + c(-1)$ $-9 = 2b - 2c \dots\dots\dots(1)$ $h'(x) = -3x^2 + 2bx + c$ $h'(-1) = -3(-1)^2 + 2b(-1) + c = 0$ $3 = -2b + c \dots\dots\dots(2)$ $(1) + (2): -c = -6 \Rightarrow c = 6$ $3 = -2b + 6$ $\therefore b = \frac{3}{2}$	✓ substitution into $h(x)$ /vervanging in $h(x)$ ✓ equation 1 / vergelyking 1 ✓ $h'(x)$ ✓ substitution and equating to 0 / vervanging en gelykstel aan 0 ✓ equation 2 / vergelyking 2 ✓ value of c / waarde van c ✓ value of b / waarde van b
		[7]





QUESTION/VRAAG 11

11.1.1	$P(A \text{ or / of } B) = 1 - P(A \text{ or / of } B)'$ $= 1 - 0,2775$ $= 0,7225$	✓ answer / antwoord (1)
11.1.2	$P(A \text{ or / of } B) = 0,7225$ $P(A) + P(B) = 0,63 + 0,25 = 0,88$ $\therefore P(A \text{ or / of } B) \neq P(A) + P(B)$ $\Rightarrow \text{not mutually exclusive / nie onderling uitsluitend}$ OR/OF $P(A \text{ and / en } B) = P(A) + P(B) - P(A \text{ or / of } B)$ $= 0,63 + 0,25 - 0,7225$ $= 0,1575$ $\therefore P(A \text{ and / en } B) \neq 0$ $\Rightarrow \text{not mutually exclusive / nie onderling uitsluitend}$	✓ calculation to support answer berekening om antwoord te staaf ✓ answer / antwoord OR/OF ✓ calculation to support answer berekening om antwoord te staaf ✓ answer / antwoord (2)
11.1.3	$P(A) \times P(B) = 0,63 \times 0,25 = 0,1575$ $P(A \text{ and / en } B) = 0,1575 \quad (\text{from / vanaf } 11.1.2)$ $\therefore P(A \text{ and / en } B) = P(A) \times P(B)$ $\Rightarrow \text{events are independent / gebeurtenisse is onafhanklik}$	✓ calculation to support answer/ berekening om antwoord te staaf ✓ answer / antwoord (2)
11.2.1	$(i) = \frac{6}{10} \text{ and / en } (ii) = \frac{4}{10}$ $(iii) = \frac{6}{8} \text{ and / en } (iv) = \frac{2}{8}$	✓ $\frac{6}{10}$ and / en $\frac{4}{10}$ ✓ $\frac{6}{8}$ and / en $\frac{2}{8}$ (2)
11.2.2 (a)	$\left(\frac{6}{10} \times \frac{4}{10} \times \frac{3}{9} \right) + \left(\frac{4}{10} \times \frac{6}{9} \times \frac{3}{9} \right)$ $= \frac{2}{25} + \frac{4}{45}$ $= 0,08 + 0,08$ $= 0,17$	✓ adding of branches optel van takke ✓ answer / antwoord (2)





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11.2.2 (b)	$P(\text{atleastoneblue}) = 1 - P(\text{allwhite})$ $P(\text{tenminsteeenblou}) = 1 - P(\text{almalwit})$ $= 1 - \left(\frac{6}{10} \times \frac{6}{10} \times \frac{6}{10}\right)$ $= 0,784$	✓ using rule / gebruik van reël ✓ answer / antwoord (2)
11.3.1		✓ $P(A \text{ or/of } B)' = d$ and/en $P(A \text{ and/en } B) = x$ ✓ $P(\text{only/slegs } A) = x + 2d$ ✓ $P(B) = d$ (3)
11.3.2	$x + 2d + x + d + d = 1$ $2x + 4d = 1$ $x + 2d = \frac{1}{2}$ $P(\text{only / slegs } A) = \frac{1}{2} / 0,5$	✓ equation / vergelyking ✓ answer / antwoord (2)
		[16]
		TOTAL/TOTAAL: 150



SA EXAM PAPERS

MATHEMATICS P1

JUNE 2026



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NOTES

1.1.1	Answer Only : $x = -2$ or / of $x = 3$	Full Marks $\left(\frac{2}{2}\right)$
1.1.1	$x = 0$ or / of $x = 3$	No Marks $\left(\frac{0}{2}\right)$
1.1.3	No factors but correct critical values	Two marks up to this stage. Next two marks will be for accuracy of answer (combo).
1.1.4	Alternative solution: $\frac{3}{2}x^{-1} - \sqrt{6}x^{\frac{1}{2}} + 1 = 0$ $x^{\frac{1}{2}} = \frac{-(-\sqrt{6}) \pm \sqrt{(-\sqrt{6})^2 - 4\left(\frac{3}{2}\right)(1)}}{2\left(\frac{3}{2}\right)}$ $x^{\frac{1}{2}} = \frac{\sqrt{6}}{3}$ $\left(x^{\frac{1}{2}}\right)^{-2} = \left(\frac{\sqrt{6}}{3}\right)^{-2}$ $x = \left(\frac{3}{\sqrt{6}}\right)^2$ $x = \frac{9}{6} = \frac{3}{2}$	✓ standard form ✓ substitution ✓ $x^{\frac{1}{2}} = \frac{\sqrt{6}}{3}$ ✓ raising both sides to -2 ✓ answer (5)
1.1.4	Squaring individual terms	Penalise & CA as long as it remains quadratic.
1.2	Normal C/A marking for simultaneous equations. Last mark is an independent mark	
2.2	Candidate cannot assume but first need to determine that it is a Geometric series.	
3.2	Accept candidates attempt – if scale factor is applied to 3 – 4 – 5 Pythagorean-triplet.	✓ 3 – 4 – 5 ✓ scale factor 3 ✓ 9 ✓ 15
3.3	Answer Only $\left(\frac{1}{4}\right)$	
3.3	Last/3 rd Option was misleading, although it yields the correct answer.	Should be removed
	To be replaced with: ALTERNATIVE SOLUTION <i>Difference</i> = $8[(36 + 441) - (25 + 400)]$ = $8(52)$ = 416	✓ $(36 + 441) \& (25 + 400)$ ✓ 52 ✓ $\times 8$ ✓ answer

EXPLANATION: This is true because of: $\sum_{i=1}^{16} T_i = (36 + 49 + 64 + 81 + 100 + 121 + 144 + 169 + 196 + 225 + 256 + 289 + 324 + 361 + 400 + 441)$ $\sum_{i=1}^{16} t_i = (25 + 36 + 49 + 64 + 81 + 100 + 121 + 144 + 169 + 196 + 225 + 256 + 289 + 324 + 361 + 400)$ $D = [(T_1+T_{16}) - (t_1 + t_{16})] + [(T_2+T_{15}) - (t_2+t_{15})] \dots \dots \dots [(T_8+T_9) - (t_8+t_9)]$ $D = [(36+441) - (25+400)] + [(49+400) - (36+361)] + [(64+361) - (49+324)] \dots [(169+196) - (144+169)]$ $= 8(52)$ $= 416$		
4.5	Accuracy (Combo)	
5.1.1	Accept other Mathematically correct alternatives Eg. Using derivative = 0	
5.3	Candidate cannot assume that D and E are symmetrical. If learner assumes s/he loses first two marks. C/A the last two marks. Learner can get max $\left(\frac{2}{4}\right)$	
5.5	Accuracy marks	
6.2	Accept $y = a^x$ (Full marks)	
7.3.2	Question states to nearest rand – Penalise for incorrect rounding off.	
8.1	Penalise 1 mark for incorrect notation. Apply CA marking. Look out for candidates that manipulates steps, since they know what the answer should be. Answer Only $\left(\frac{0}{4}\right)$	
8.2.2	Deriving each of the individual terms $\left(\frac{0}{4}\right)$	
	If there are mistakes in getting to differentiable form, CA may be applied only if the first exponent is a fraction and the second is negative.	
9.5.1	Marks may be split	✓ $x < -1$ ✓ $x > 3$
9.5.3	Marks may be split	✓ $-1 < x < 3$ ✓ $x > 5$
11.2.2 (a)	Correction to MG: $\left(\frac{6}{10} \times \frac{4}{10} \times \frac{3}{9}\right) + \left(\frac{4}{10} \times \frac{6}{9} \times \frac{3}{9}\right) + \left(\frac{4}{10} \times \frac{3}{9} \times \frac{6}{8}\right)$ $= \frac{121}{450}$ $\approx 0,269$	✓ adding of branches ✓ answer
11.3.1	Third mark : ✓ $P(B \text{ only}) = d$	