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PROVINCIAL EXAMINATION

PROVINSIALE EKSAMEN

GRADE 12/*GRAAD 12*

MATHEMATICS/*WISKUNDE*

PAPER 1/*VRAESTEL 1*

JUNE/*JUNIE 2025*

MARKING GUIDELINES/*NASIENRIGLYNE*

MARKS/*PUNTE*: 150

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



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NOTE:

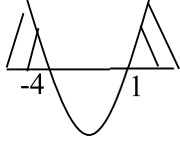
- If a candidate answered a question TWICE, mark only the FIRST attempt.
- If a candidate has crossed out an attempt to answer a question and did not redo it, mark the crossed-out version.
- Consistent accuracy applies in ALL aspects of the marking memorandum. Stop marking at the second calculation error.
- (A) is an accuracy mark.
- Assuming answers/values in order to solve a problem is NOT acceptable.

LET WEL:

- *Indien 'n kandidaat 'n vraag TWEE keer beantwoord het, sien slegs die EERSTE poging na.*
- *As 'n kandidaat 'n poging om 'n vraag te beantwoord, doodgetrek en nie oorgedoen het nie, sien die doodgetrekte poging na.*
- *Volgehoue akkuraatheid is op ALLE aspekte van die memorandum van toepassing. Staak nasien by die tweede berekeningsfout.*
- *(A) is 'n punt vir akkuraatheid.*
- *Om antwoorde/waardes om 'n probleem op te los, te veronderstel, word NIE toegelaat NIE.*

**SA EXAM PAPERS**

QUESTION/VRAAG 1

1.1.1	$x = -\frac{1}{2}$ OR $x = 0$	✓ answers/antwoord ✓ answers/antwoord (2)
1.1.2	$5x^2 + 3x - 1 = 0$ $\therefore x = \frac{-3 \pm \sqrt{3^2 - 4(5)(-1)}}{2(5)}$ $x = 0,24$ or $x = -0,84$ Penalise 1 mark for incorrect rounding Only at this question.	✓ substitution into formula/substitusie in die formule ✓ value/waarde ✓ value/waarde (3)
1.1.3	$2x^2 + 6x - 8 \geq 0$ $2(x+4)(x-1) \geq 0$ OR $(2x+8)(x-1) \geq 0$ $CV : x = -4$ or $x = 1$ $\therefore x \leq -4$ or $x \geq 1$  If 'and' instead of 'or', penalise 1 mark	✓ factors/faktore (or s/f into formula) ✓ answer/antwoord $x \leq -4$ ✓ answer/antwoord $x \geq 1$ (3)
1.1.4	$\sqrt{3x+13} = x+1$ $3x+13 = x^2 + 2x+1$ $0 = x^2 - x - 12$ $0 = (x-4)(x+3)$ $\therefore x = 4$ OR $x = -3$	✓ squaring both sides/kwadreer beide kante ✓ standard form/standaardvorm ✓ factors/faktore (OR s/f) ✓ both answers and selection/beide antwoorde en keuse (4)
1.1.5	$3^{(2x+2)} + 8 \cdot 3^x - 1 = 0$ $9 \cdot 3^{2x} + 8 \cdot 3^x - 1 = 0$ $(9 \cdot 3^x - 1)(3^x + 1) = 0$ $3^x = \frac{1}{9}$ OR $3^x \neq -1$ $\therefore x = -2$ OR $AO = \frac{1}{4}$, but if inspection is shown, full marks	✓ method split exponent/splitekspont ✓ factors/faktore ✓ both answers/beide antwoorde ✓ selection/keuse

	$3^{(2x+2)} + 8 \cdot 3^x - 1 = 0$ $9 \cdot 3^{2x} + 8 \cdot 3^x - 1 = 0$ Let $k = 3^x$ $9k^2 + 8k - 1 = 0$ $(9k - 1)(k + 1) = 0$ $k = \frac{1}{9} \quad \text{or} \quad k = -1$ $\therefore 3^x = \frac{1}{9} \quad \text{OR} \quad 3^x \neq -1$ $\therefore x = -2$	✓ method split exponent/ <i>spliteksponent</i> ✓ factors/faktore ✓ both answers/beide <i>antwoorde</i> ✓ selection/keuse (4)
1.2	$x - 2y - 3 = 0 \quad \text{and} \quad x^2 - 3xy + y^2 = 11$ $x = 2y + 3 \quad \dots\dots(1)$ $x^2 - 3xy + y^2 - 11 = 0 \quad \dots\dots(2)$ $(2y + 3)^2 - 3(2y + 3)y + y^2 - 11 = 0$ $4y^2 + 12y + 9 - 6y^2 - 9y + y^2 - 11 = 0$ $y^2 - 3y + 2 = 0$ $(y - 2)(y - 1) = 0$ $y = 2 \quad \text{or} \quad y = 1$ $x = 7 \quad \text{or} \quad x = 5$ If y is swapped with x when factorising, penalise -1 and CA OR ANY OTHER CORRECT METHOD	✓ $x = 2y + 3$ ✓ substitution/substitusie ✓ standard format/ <i>standaardformaat</i> ✓ factors/faktore ✓ y-values/y-waardes ✓ x-values/x-waardes (6)
1.3	$f(x) = x^2 - 5x + c$ $b^2 - 4ac = 41$ $(-5)^2 - 4(1)(c) = 41$ $-4c = 16$ $c = -4$ OR $\left(\frac{5 + \sqrt{41}}{2}\right)^2 - 5\left(\frac{5 + \sqrt{41}}{2}\right) + c = 0$ $c = -4$ OR $\left(\frac{5 - \sqrt{41}}{2}\right)^2 - 5\left(\frac{5 - \sqrt{41}}{2}\right) + c = 0$ $c = -4$	✓ s/f into Δ /s/f in Δ ✓ simplify/vereenvoudig ✓ answer/antwoord ✓✓ substitute "+" into $f(x)$ /vervang "+" in $f(x)$ ✓ answer/antwoord OR ✓✓ substitute "-" into $f(x)$ /vervang "-" in $f(x)$ ✓ answer/antwoord (3)
		[25]

QUESTION/VRAAG 2

2.1	$ \begin{array}{ccccccc} x & & 17 & & y & & 57 & & 86 \\ & \swarrow & \searrow & & \swarrow & \searrow & & \swarrow & \searrow \\ & 17-x & & y-17 & & 57-y & & 29 & \\ & & \swarrow & \searrow & & \swarrow & \searrow & & \\ & & y-34+x & & 74-2y & & -28+y & & \end{array} $ $ \begin{aligned} 74-2y &= -28+y \\ 3y &= 102 \\ y &= 34 \\ y-34+x &= 74-2y \\ 34-34+x &= 74-2(34) \\ x &= 6 \end{aligned} $ $AO = \frac{3}{5}$ max, but if inspection is shown, full marks	✓ setting 1st differences/stel van 1^{ste} verskille ✓ setting 2nd differences/stel van 2^{de} verskille ✓ equating/vergelyk ✓ answer/antwoord ✓ answer/antwoord (5)
2.2.1	$ \begin{array}{ccccc} 600 & & 900 & & 1200 \\ & \swarrow & \searrow & \swarrow & \searrow \\ & 300 & & 300 & \end{array} $ $ \begin{aligned} T_{15} &= 600 + (14)(300) \\ &= 4800m \quad OR \quad = 4,8km \end{aligned} $ OR $ \begin{aligned} T_n &= 300n + 300 \\ T_{15} &= 300(15) + 300 \\ &= 4800 \text{ m} \end{aligned} $	✓ finding "d"/ vind "d" ✓ substitution into the correct formula/substitusie in die korrekte formule ✓ answer/antwoord (3)
2.2.2	$ \begin{aligned} S_{15} &= \frac{15}{2} [2(600) + (14)(300)] \\ &= 40\,500m \\ &= 40,5km \end{aligned} $	✓ substitution into the correct formula/substitusie in die korrekte formule ✓ answer/antwoord ✓ answer in km/antwoord in km (3)



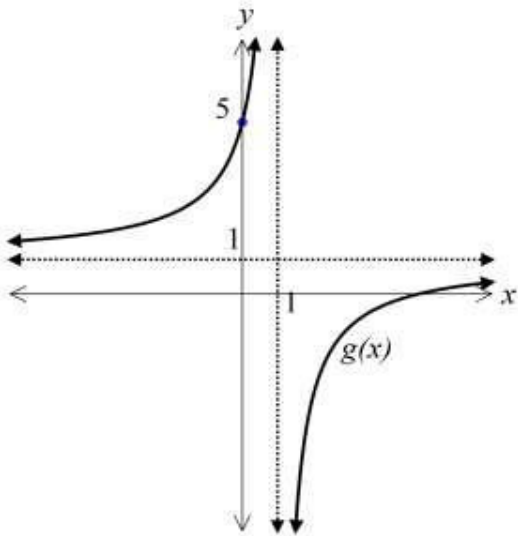
2.2.3	$T_{180} = 600 + (179)(300)$ $= 54\,300m$ $= 54,3km$ She will be eligible to run the Comrades. OR $42000 = 600 + (n-1)(300)$ $41700 = 300n$ $n = 139 \text{ days}$ She would be able to run 42 km in less than 6 months. OR ANY OTHER CORRECT INTERPRETATION, WITH THE CORRECT CONCLUSION	✓ substitution into the correct formula /substitusie in die korrekte formule ✓ answer/antwoord ✓ answer/antwoord (3)
2.3	$96 ; 91 ; 86 \quad (d = -5)$ $S_{21} = \frac{21}{2} [2(96) + 20(-5)]$ $= 966$	✓ m expand/brei uit ✓ m s/f ✓ answer/antwoord (3)
2.4.1	$p = \frac{a}{1-r}$ $r = 1 - \frac{a}{p}$ $-1 < 1 - \frac{a}{p} < 1$ $-2 < -\frac{a}{p} < 0$ $-2p < -a < 0$ $\therefore 0 < a < 2p \text{ OR } a \in (0; 2p)$	✓ $S_{\infty} = p$ ✓ $r = 1 - \frac{a}{p}$ ✓ $-1 < r < 1$ ✓ m subtract 1/trek 1 af ✓ m times $-p$/maal met $-p$ (5)
2.4.2	$a = \frac{p}{4}$ $p = \frac{a}{1-r}$ $\therefore a = p(1-r)$ $\therefore p(1-r) = \frac{p}{4}$ $1-r = \frac{1}{4}$ $r = \frac{3}{4}$	✓ m $a = p(1-r)$ ✓ m equating/vergelyk ✓ answer/antwoord (3)
		[25]



QUESTION/VRAAG 3

The diagram shows the hyperbola defined by $g(x) = \frac{-4}{x+r} + t$.

The asymptotes of g cut both the x and y -axes at 1. The y -intercept of g is 5.



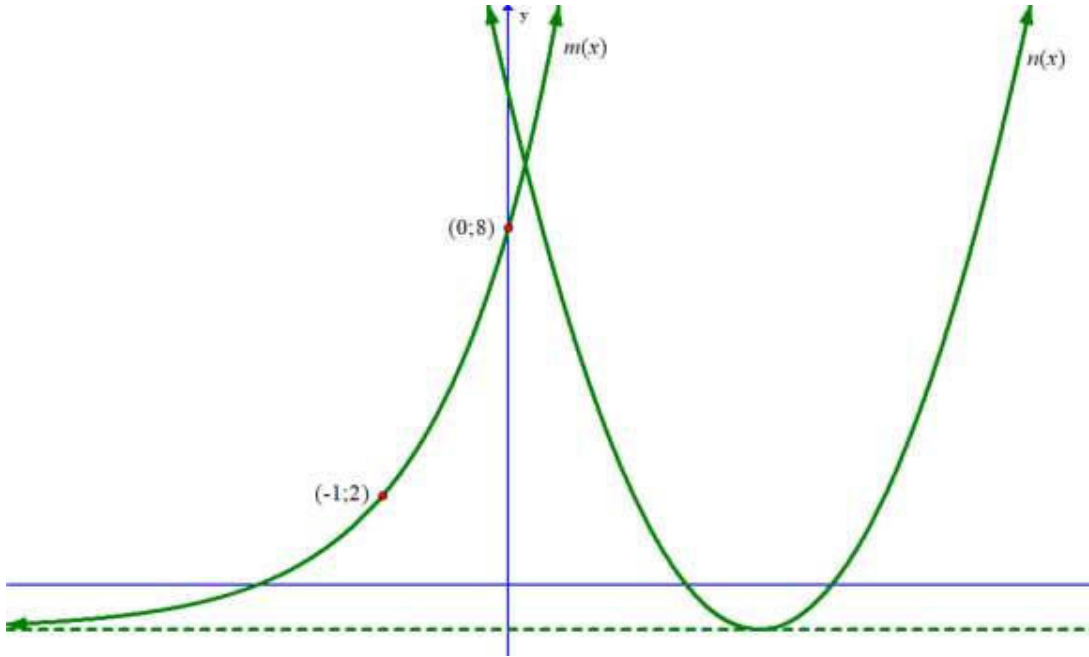
3.1	Increasing	✓ answer/antwoord (1)
3.2	$r = -1$ $t = 1$	✓ value of r /waarde van r ✓ value of t /waarde van t (2)
3.3	$y \neq 1 ; y \in \mathbb{R}$	✓✓ $y \neq 1$ NO MARKS FOR $y \in \mathbb{R}$ (2)
3.4	$y = -(x-1)+1$ $= -x+2$ OR $y = -x+c$ $(1;1) : 1 = -1+c$ $c = 2$ $\therefore y = -x+2$ OR ANY OTHER CORRECT METHOD	✓ method/metode ✓ answer/antwoord ✓ method/metode ✓ answer/antwoord (2)
3.5.1	$0 \leq x < 1$ OR $x \in [0;1)$	✓✓ combo answer/ kombinasie-antwoord (2)

3.5.2	$0 = \frac{-4}{x-1} + 1$ $-1(x-1) = -4$ $-x+1 = -4$ $x = 5$ $\therefore 1 < x < 5 \quad \text{OR} \quad x \in (1; 5)$ OR ANY OTHER CORRECT METHOD	✓ method x-intercept/ metode x-afsnit ✓✓ combo answer/ kombinasie-antwoord (3)
3.6	$x = -3$	✓ answer/antwoord (1)
		[13]



QUESTION/VRAAG 4

Drawn below are the functions $m(x) = a \cdot b^{x+2} + q$ and $n(x) = 3x^2 - 12x + 11$.



4.1	$6x - 12 = 0$ $\therefore x = 2$ OR $x = -\frac{(-12)}{2(3)}$ $\therefore x = 2$ OR $n(x) = 3(x - 2)^2 - 1$ $\therefore x = 2$	✓ derivative = 0/ <i>afgeleide = 0</i> ✓ answer/antwoord ✓ $-\frac{b}{2a}$ ✓ answer/antwoord ✓ complete square/voltooï <i>die vierkant</i> ✓ answer/antwoord (2)
4.2	$p(x) = 3(-x)^2 - 12(-x) + 11$ $p(x) = 3x^2 + 12x + 11$ OR $p(x) = 3(x + 2)^2 - 1$	✓ m substitute $(-x)$ / <i>sustitusie $(-x)$</i> ✓ equation/vergelyking (2)

AO = full marks



4.3	$y = a.b^{x+2} - 1$ $8 = a.b^{0+2} - 1$ $8 = a.b^2 - 1$ $9 = a.b^2$ $\frac{9}{b^2} = a \dots\dots\dots(1)$ $2 = a.b^{-1+2} - 1$ $2 = a.b - 1$ $3 = a.b \dots\dots\dots(2)$ $\therefore 3 = \frac{9}{b^2}(b) \dots\dots(1) \text{ into } (2)$ $\therefore b = 3$ $\therefore a = 1$ OR $\frac{9}{b^2} = \frac{3}{b}$ $\therefore b = 3$ $\therefore a = 1$	$\checkmark q = -1$ $\checkmark$ substitution (0; 8)/ <i>substitusie (0 ; 8)</i> $\checkmark \frac{9}{b^2}$ $\checkmark$ substitution (-1; 2)/ <i>substitusie (-1 ; 2)</i> $\checkmark$ substitution ① into ②/ <i>substitusie ① in ②</i> $\checkmark b = 3$ $\checkmark a = 1$
4.4	$n(x) = 3x^2 - 12x + 11 = 0$ $x = \frac{-(-12) \pm \sqrt{(-12)^2 - 4(3)(11)}}{2(3)}$ $x = 2,58 \quad \text{or} \quad x = 1,42$ $AO = \frac{2}{4} \max$ $\therefore 1,42 < x < 2,58 \quad \text{or} \quad x < 0$	$\checkmark$ substitution into formula/substitusie in die formule $\checkmark$ both values/beide waardes $\checkmark 1,42 < x < 2,58$ $\checkmark x < 0$
		[15]



QUESTION/VRAAG 5

5.1	$g: y = 4^{-x}$ $g^{-1}: x = 4^{-y}$ $-y = \log_4 x$ $y = -\log_4 x$ OR $y = \log_{\frac{1}{4}} x$ AO = full marks	✓ swop x and y /ruil x en y om ✓ answer/antwoord (2)
5.2		✓ $g(x)$ shape and intercept/ $g(x)$ vorm en afsnit ✓ $g^{-1}(x)$ shape and intercept/ $g^{-1}(x)$ vorm en afsnit ✓ asymptotes/asimptote ✓ another point/nog 'n punt (4)
5.3	$x > 0; x \in \mathbb{R}$	✓ answer/antwoord (1)
5.4	$x \geq 1$ If $x > 1$ award 1 mark	✓✓ answer/antwoord (2)
		[9]

QUESTION/VRAAG 6

**PENALISE -1 FOR NOTATION ONLY IN 6.1/
 PENALISEER -1 VIR NOTASIE SLEGS IN 6.1**

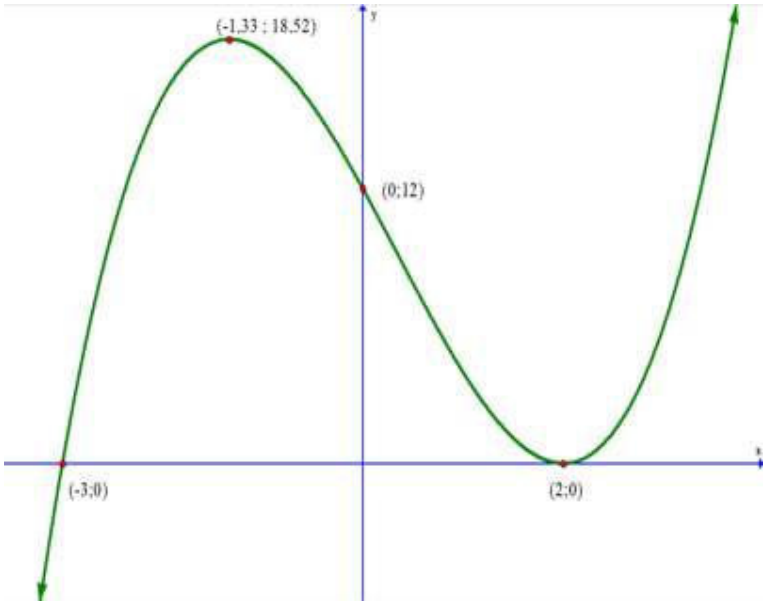
6.1	$f(x) = 1 - 3x^2$ $f(x+h) = 1 - 3(x+h)^2$ $= 1 - 3(x^2 + 2xh + h^2)$ $= 1 - 3x^2 - 6xh - 3h^2$ $f'(x) = \lim_{h \rightarrow 0} \frac{1 - 3x^2 - 6xh - 3h^2 - (1 - 3x^2)}{h}$ $= \lim_{h \rightarrow 0} \frac{1 - 3x^2 - 6xh - 3h^2 - 1 + 3x^2}{h}$ $= \lim_{h \rightarrow 0} \frac{h(-6x - 3h)}{h}$ $= \lim_{h \rightarrow 0} (-6x - 3h)$ AO = NO MARKS $\therefore f'(x) = -6x$	✓ $f(x+h) =$ $1 - 3x^2 - 6xh - 3h^2$ ✓ substitution into the correct formula/ <i>substitusie in die korrekte formule</i> ✓ simplification/ <i>vereenvoudiging</i> ✓ common factor/ <i>gemene faktor</i> ✓ answer/antwoord (5)
6.2.1	$f(x) = 3x^3 - \frac{7}{2}x^{-2} + 4$ $f'(x) = 9x^2 + 7x^{-3}$	✓ x^{-2} ✓ $9x^2 + 7x^{-3}$ (2)
6.2.2	$f(x) = \left(2\sqrt{x} - \frac{1}{x}\right)^2$ $= \left(2x^{\frac{1}{2}} - x^{-1}\right)\left(2x^{\frac{1}{2}} - x^{-1}\right)$ $f(x) = 4x - 4x^{-\frac{1}{2}} + x^{-2}$ $f'(x) = 4 + 2x^{-\frac{3}{2}} - 2x^{-3}$ 1 mark for 2 terms CA correct 2 marks for 3 terms CA correct	✓ $2x^{\frac{1}{2}}$ or / of x^{-1} ✓ simplify/ <i>vereenvoudig</i> ✓✓ answer/antwoord (4)
6.3	$f'(x) = 3 \quad \text{and} \quad g(3) = 11$ $f(3) = 11$ $\therefore f(3) + f'(3)$ $= 11 + 3$ $= 14$	✓ $f'(x) = 3$ ✓ $f(3) = 11$ ✓ answer/antwoord (3)
		[14]



QUESTION/VRAAG 7

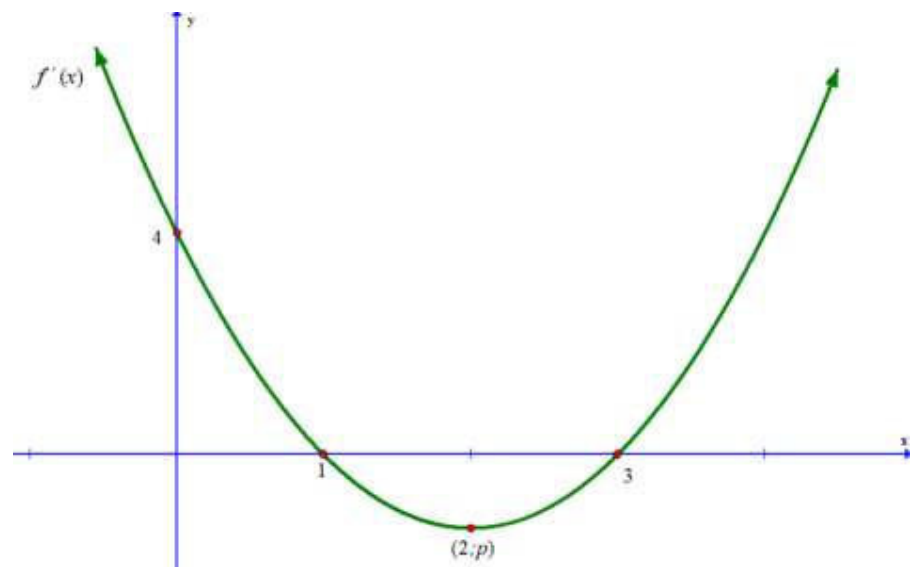
7.1	$f(x) = x^3 - x^2 - 8x + 12$ x -intercepts: $y = 0$ $f(2) = 0 \quad \therefore x - 2$ is a factor <table> <tr> <td style="border-right: 1px solid black; padding: 0 5px;">2</td> <td style="padding: 0 5px;">1</td> <td style="padding: 0 5px;">-1</td> <td style="padding: 0 5px;">-8</td> <td style="padding: 0 5px;">12</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;"></td> <td style="padding: 0 5px;"></td> <td style="padding: 0 5px;">2</td> <td style="padding: 0 5px;">2</td> <td style="padding: 0 5px;">-12</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 0 5px;"></td> <td style="padding: 0 5px;">1</td> <td style="padding: 0 5px;">1</td> <td style="padding: 0 5px;">-6</td> <td style="padding: 0 5px;">0</td> </tr> </table> OR ANY OTHER CORRECT METHOD $f(x) = (x - 2)(x^2 + x - 6)$ $0 = (x - 2)(x + 3)(x - 2)$ $x = 2 \quad \text{or} \quad x = -3$	2	1	-1	-8	12			2	2	-12		1	1	-6	0	$\checkmark$ m finding a first factor/ <i>verkry 'n eerste faktor</i> $\checkmark$ other factors/ <i>ander faktore</i> $\checkmark x = 2$ $\checkmark x = -3$ (4)
2	1	-1	-8	12													
		2	2	-12													
	1	1	-6	0													
7.2	Stationary points: $f'(x) = 0$ $f'(x) = 3x^2 - 2x - 8$ $0 = (3x + 4)(x - 2)$ $\therefore x = -\frac{4}{3} \quad \text{or} \quad x = 2$ $f(-\frac{4}{3}) = (-\frac{4}{3})^3 - (-\frac{4}{3})^2 - (8)(-\frac{4}{3}) + 12$ $= 18,52$ $f(2) = (2)^3 - (2)^2 - (8)(2) + 12$ $= 0$ Turning points : $(-1,33 ; 18,52) \quad \text{or} \quad (2 ; 0)$	$\checkmark$ m $f'(x) = 0$ $\checkmark$ derivative/ <i>afgeleide</i> $\checkmark$ both x answers/ <i>beide x-antwoorde</i> $\checkmark (-1,33 ; 18,52)$ $\checkmark (2 ; 0)$ (5)															



7.3		✓ shape/vorm ✓ both turning points/ beide draaipunte ✓ x and y intercepts/x- en y-afsnitte (3)
7.4	$f''(x) < 0$ $6x - 2 < 0$ $x < \frac{1}{3}$ OR $x \in \left(-\infty; \frac{1}{3}\right)$ OR Point of inflection: $x = \frac{-\frac{4}{3} + 2}{2}$ $= \frac{1}{3}$ $\therefore x < \frac{1}{3}$	✓ m $f''(x) < 0$ ✓ answer/antwoord ✓ m ✓ answer/antwoord (2)
		[14]



QUESTION/VRAAG 8



NO CA-MARKING ALLOWED

8.1	$f'(0) = 4$ OR $m = 4$	✓ answer/antwoord (1)
8.2	$x = 1$ or $x = 3$	✓ $x = 1$ ✓ $x = 3$ (2)
8.3	$1 < x < 3$	✓✓ answer/antwoord (2)
		[5]

QUESTION/VRAAG 9

9.1	$1 + i_{\text{eff}} = \left(1 + \frac{0,12}{2}\right)^2$ $i_{\text{eff}} = 0,1236$ $\therefore r = 12,36\%$ If $\frac{0,12}{6}$ max. 2 marks CA	✓ substitution into the correct formula $\frac{0,12}{2}$ / <i>substitusie in die korrekte formule</i> ✓ substitution into the correct formula $2 /$ <i>substitusie in die korrekte formule</i> ✓ 12,36% (3)
9.2	$A = 250000 \left(1 - \frac{9,5}{100}\right)^7$ $= R124302.56$	✓ R250 000 ✓ substitution into the correct formula i and $n /$ <i>substitusie in die korrekte formule i en n</i> ✓ answer/antwoord (3)
9.3	$A = 28000 \left(1 + \frac{0,075}{12}\right)^{48} - 5500 \left(1 + \frac{0,075}{12}\right)^{33} + 12000 \left(1 + \frac{0,075}{12}\right)^{24}$ $= R44\,940,79$ OR $A = 28\,000 \left(1 + \frac{0,075}{12}\right)^{15} = R30\,743,01323$ $A = R30\,743,01323 - 5\,500 = R25\,243,01323$ $A = 25\,243,01323 \left(1 + \frac{0,075}{12}\right)^9 = R26\,698,95328$ $A = R26\,698,95328 + 12\,000 = R38\,698,95328$ $A = 38\,698,95328 \left(1 + \frac{0,075}{12}\right)^{24} = R44\,940,79$	✓✓ substitution P, i and $n /$ <i>substitusie P, i en n</i> $28000 \left(1 + \frac{0,075}{12}\right)^{48}$ ✓ substitution/ <i>substitusie</i> $-5500 \left(1 + \frac{0,075}{12}\right)^{33}$ ✓ substitution/ <i>substitusie</i> $+12000 \left(1 + \frac{0,075}{12}\right)^{24}$ ✓ answer/antwoord OR ✓✓✓✓✓ 1 mark for each step/ <i>1 punt per stap</i> (5)

9.4	$374\,522,21 = 240\,000 \left(1 + \frac{i}{4}\right)^{20}$ $\sqrt[20]{\frac{374\,522,21}{240\,000}} - 1 = \frac{i}{4}$ $i = 0,09$ $r = 9\%$	✓ A and P in correct place/A en P in korrekte plek ✓ $\frac{i}{4}$ and $n = 20$ ✓ simplification/vereenvoudiging ✓ answer/antwoord (4)
		[15]

QUESTION/VRAAG 10

10.1	$P(\text{not winning}) = (0,7 \times 0,1) + (0,3 \times 0,55)$ $= \frac{47}{200}$ or 23,5%	✓ first branch/eerste tak (0,7 and 0,3) ✓ second branch/tweede tak (0,9 and 0,1) ✓ third branch/derde tak (0,45 and 0,55) ✓ outcomes/uitkomst ✓ m ✓ answer/antwoord (6)
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10.2.1	$P(M, \text{not qualifying}) = \frac{4\,983}{10\,225}$	✓ answer/antwoord (1)
10.2.2	$P(F) \times P(Q) = \frac{5200}{10225} \times \frac{79}{10225}$ $= \frac{410800}{104550625}$ $= 0,003929...$ $\approx 0,004$ $P(F \text{ and } Q) = \frac{37}{10225}$ $= 0,003618...$ $\approx 0,004$ $P(F) \times P(Q) = P(F \text{ and } Q)$ $\therefore \text{ independent}$	$\checkmark \frac{5200}{10225} \times \frac{79}{10225}$ $\checkmark \text{correct probability/}$ $\text{korrekte waarskynlikheid}$ $\frac{37}{10225}$ $\checkmark \text{conclusion/afleiding}$ (3)
		[10]

QUESTION/VRAAG 11

11.1	$P(R \text{ or } Q) = P(R) + P(Q) - P(R \text{ and } Q)$ $0,9 = 0,4 + y$ $y = 0,5$	$\checkmark \text{substitution into correct}$ $\text{formula/substitusie in die}$ korrekte formule $\checkmark \text{answer/antwoord}$ (2)
11.2	$P(E \text{ and } F) = P(E) \times P(F)$ $\therefore \frac{1}{3} = x \times y$ $\therefore \frac{1}{3y} = x \dots\dots\dots(1)$ $P(E \text{ or } F) = P(E) + P(F) - P(E \text{ and } F)$ $\therefore \frac{9}{10} = x + y - \frac{1}{3}$ $\therefore \frac{9}{10} = \frac{1}{3y} + y - \frac{1}{3}$ $\therefore 27y = 10 + 30y^2 - 10y$ $\therefore 30y^2 + 10 = 37y$	$\checkmark xy = \frac{1}{3}$ $\checkmark \text{substitution into correct}$ $\text{formula/substitusie in die}$ korrekte formule $\checkmark \text{substitution of equation}$ $(1)/\text{substitusie van}$ vergelyking (1) (3)
		[5]

TOTAL/TOTAAL: 150