Province of the
EASTERN CAPE
EDUCATION

NATIONAL SENIOR CERTIFICATE / *NASIONALE SENIOR SERTIFIKAAT*

GRADE/*GRAAD* 12

JUNE/*JUNIE* 2019

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

MARKS/*PUNTE*: 150

Marking Codes/*Nasienkodes*	
A	**Accuracy / *Akkuraatheid***
CA	**Consistent accuracy / *Deurlopende akkuraatheid***
M	**Method / *Metode***
R	**Rounding / *Ronding***
NPR	**No penalty for rounding / *Geen penalisering vir ronding***
NPU	**No penalty for units omitted / *Geen penalisering vir geen eenhede***
S	**Simplification / *Vereenvoudiging***
SF	**Substitution in the correct formula / Vervanging in 'n korrekte formule**

This marking guideline consists of 15 pages./
Hierdie nasienriglyn bestaan uit 15 bladsye.

NOTE/*LET WEL*:

- If a candidate answers a question TWICE, only mark the FIRST attempt.
- *Indien 'n kandidaat 'n vraag TWEE keer beantwoord, sien slegs die EERSTE poging na.*
- If a candidate has crossed out an attempt of a question and not redone the question, mark the crossed-out version.
- *Indien 'n kandidaat 'n poging gekanselleer het, maar dit nie weer gedoen het nie, sien die gekanselleerde poging na.*
- Consistent accuracy (CA) applies to ALL aspects of the marking guideline.
- *Volgehoue akkuraatheid (CA) is deurgaans in ALLE aspekte van die nasienriglyn van toepassing.*
- Assuming answers/values to solve a problem is NOT acceptable.
- *Aanvaarding van waardes/antwoorde om 'n probleem op te los, is onaanvaarbaar.*

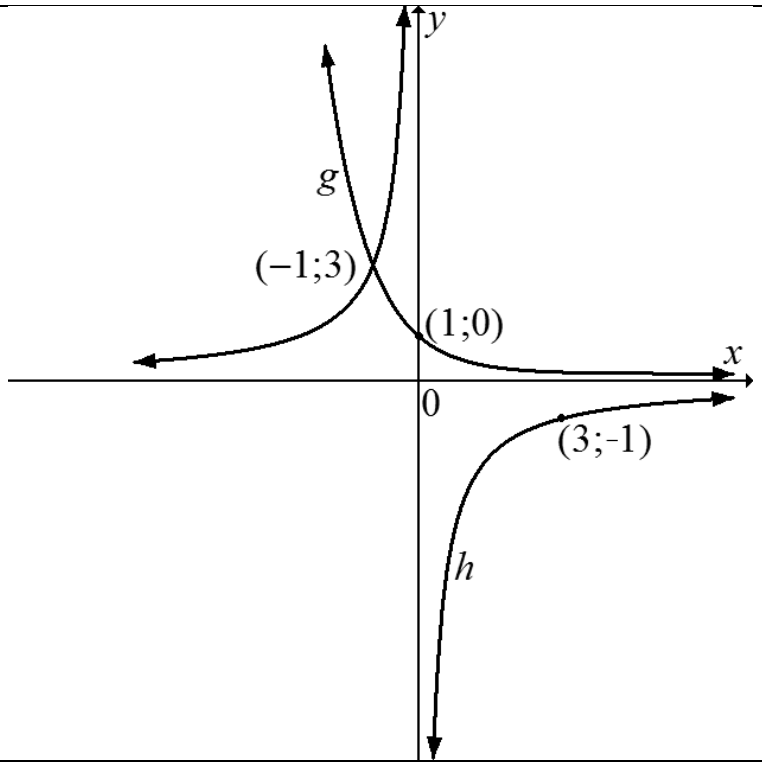
QUESTION/*VRAAG* 1				
1.1	1.1.1	$(7x-1)(x+2)=0$ $7x-1=0 \quad \text{or} \quad x+2=0$ $\therefore x=\frac{1}{7} \quad \text{or/}of \quad x=-2$	✓$x=\frac{1}{7}$ **A** ✓$x=-2$ **A**	(2)
	1.1.2	$(x-2)(3x-1)=1$ $3x^2-7x+1=0$ $x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}$ $x=\frac{-(-7)\pm\sqrt{(-7)^2-4(3)(1)}}{2(3)}$ $x=2{,}18 \text{ or/}of \quad x=0{,}15$ **-1 MARK for incorrect rounding/ *-1 PUNT vir verkeerde afronding***	✓Simplification/Standard Form/*Vereenvoudiging/ Standaardvorm* **A** ✓Formula/*Formule* **A** ✓Substitution/*Vervanging* **CA** ✓Both values of *x/Beide waardes van x* **CA R**	(4)
	1.1.3	$-x^2-4x+5\geq 0$ $x^2+4x-5\leq 0$ $(x+5)(x-1)\ \leq 0$ C.V : -5 and 1 Solution : $-5\leq x\leq 1$ **OR / *OF*** $x\in[-5;1]$ **OR / *OF*** $x\geq -5$ and / *en* $x\leq 1$	✓Factors/ Substitution in the quadratic formula **M A** *Faktore/Vervanging in kwadratiese formule* ✓Critical Values/ *Kritiese waardes* **CA NPR** ✓Correct Notation **CA** *Korrekte notasie*	(3)

1.2		Total thickness of the pack/ = 151 ÷ 1 000 = 0,151 m *Totale dikte van die bondel* Thickness of 1 metal sheet = 0,151 ÷ 300 *Dikte van 1 metaalblad* $= \frac{151}{300000}$ $= 5,03\times10^{-4}$ m **OR/*OF*** Thickness of one metal sheet = $\left(\frac{151}{300}\right)\div1000$ $= 5,03\times10^{-4}$ m	✓Conversion/*Herleiding* **A** ✓Method/*Metode* **CA M** ✓ $5,03\times10^{-4}$ **CA NPU**	(3)
1.3	1.3.1	$(y-5x)(y+5x)$	✓Factors/*Faktore* **A**	(1)
	1.3.2	$2y+6x=4$ and / *en* $y^2-25x^2=4$ $y=-3x+2$ substitute y into $y^2-25x^2=4$ $(-3x+2)^2-25x^2-4=0$ $9x^2-12x+4-25x^2-4=0$ $-16x^2-12x=0$ $-x(16x+12)=0$ $x=0$ or / *en* $16x=-12$ $x=0$ or / *en* $x=-\frac{12}{16}=-\frac{3}{4}$ if $x=0$ then / *dan* $y=2$ if $x=-\frac{3}{4}$ then / *dan* $y=-3\left(-\frac{3}{4}\right)+2$ $=\frac{17}{4}$	✓y - the subject/*die onderwerp* **A** ✓Substitution by/*Vervang deur* y = -3x+2 **SF CA** ✓Simplification/*Vereenvoudig* Standard form/ *Standaardvorm* **S CA** ✓Factors/*Faktore* **CA** ✓x-values/*waardes* **CA** ✓y-values/waardes **CA**	(6)

	1.3.2	**OR/*OF*** Substitute/*Vervang* $y=-3x+2$ into/*in* $(y-5x)(y+5x)=4$ $(-3x+2-5x)(-3x+2+5x)=4$ $(-8x+2)(2x+2)=4$ $-1-16x^2-12x+4-4=0$ $-16x^2-12x=0$ $-x(16x+12)=0$ $x=0$ or / *of* $16x=-12$ $x=0$ or / *of* $x=-\frac{12}{16}=-\frac{3}{4}$ if $x=0$ then / *dan* $y=2$ if $x=-\frac{3}{4}$ then / *dan* $y=-3\left(-\frac{3}{4}\right)+2$ $=\frac{17}{4}$	✓*y* - the subject/-*die onderwerp* **A** ✓Substitution by/*Vervang deur* y = -3x+2 **SF CA** ✓Simplification/Standard form *Vereenvoudig/Standaardvorm* **S CA** ✓Factors/*Faktore* **CA** ✓*x*-values/*waardes* **CA** ✓*y*-values/*waardes* **CA**	
1.4	1.4.1	$p\in\{1;2;3;4;5\}$	✓✓All 5 correct values/ *Al 5 korrekte waardes* **A** ✓Only 3 correct values/ *Slegs 3 korrekte waardes* **A** No mark for less than 3 values *Geen punt vir minder as 3 waardes*	(2)
	1.4.2	$p=6$	✓6 **A**	(1)
1.5	Real, rational and unequal/*Reël, rasionaal en ongelyk*		✓Real and unequal/*Reël en ongelyk* **A** ✓Rational/*Rasionaal* **A**	(2)
1.6	$86=2^6+2^4+2^2+2^1$ $=1010110_2$ **OR/*OF*** 2 | 86 | Remainder/Res 2 | 43 | 0 2 | 21 | 1 2 | 10 | 1 2 | 5 | 0 2 | 2 | 1 2 | 1 | 0 | 0 | 1 **-1 Mark of base 2 is not written** ***-1 Punt vir basis 2 nie geskryf nie***	✓Method/*Metode* **M** ✓Accurate answer/*Akkurate antwoord* **A**	(2)
				[26]

QUESTION/*VRAAG* 2				
2.1	2.1.1	$3^n.3^4 = 3^{n+4}$	✓3^{n+4} **A**	(1)
	2.1.2	$\frac{7.3^{n+2}}{3^{n+4}-6.3^{n+1}}$ $=\frac{3^n.3^2.7}{3^n\left(3^4-6.3\right)}$ $=\frac{63}{63}$ $=1$	✓Factors/*Faktore* **S** ✓Simplification/ *Vereenvoudig* **S CA**	(2)
	2.1.3	$\sqrt{32}-\sqrt{72}+\sqrt{18}$ $=4\sqrt{2}-6\sqrt{2}+3\sqrt{2}$ $=\sqrt{2}$	✓Simplification/ *Vereenvoudig* **S** ✓Simplification/ *Vereenvoudig* **S CA**	(2)
	2.1.4	$-\log_3 243+\log_3 1$ $=-\log_3 3^5+0$ $=-5$	✓0 **A** ✓-5 **S CA**	(2)
2.2	2.2.1	$\frac{\left(4^x\right)^{2x}.\sqrt{16^{-3}}}{4^x}=\left(4^x\right)^0$ $\frac{\left(4^{2x^2}\right).4^{2\times-\frac{3}{2}}}{4^x}=4^0$ $4^{2x^2-3-x}=4^0$ $2x^2-x-3=0$ $(2x-3)(x+1)=0$ $x=\frac{3}{2}$ or/*of* $x=-1$	✓Power rule/*Magreël* **A** ✓Same base/*Dieselfde basis* **S CA** ✓Equal exponents/ *Gelyke eksponente* **CA** ✓Factors/*Faktore* **S M CA** ✓ $x = \frac{3}{2}$ **CA** ✓$x=-1$ **CA**	(6)

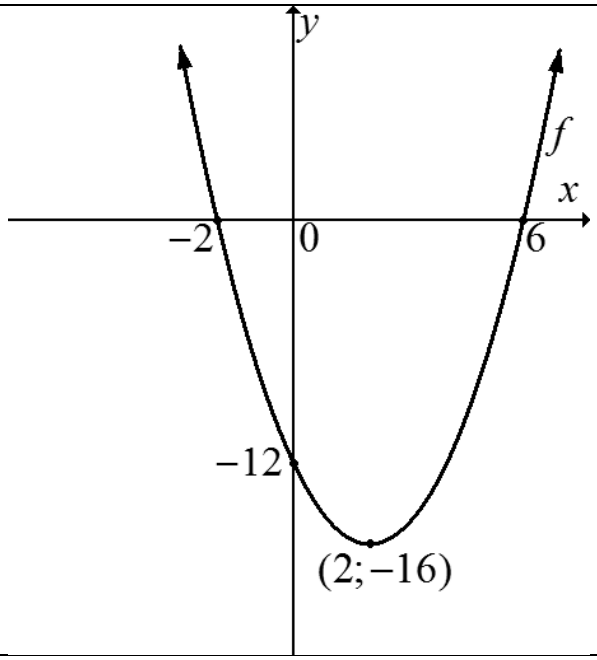
	2.2.2	$x=\dfrac{\log 6-\log 2}{\log 9\left(2\log 5+\log 4\right)}$ $x=\dfrac{\log\frac{6}{2}}{\log 9\left(\log 100\right)}$ $x=\dfrac{\log 3}{2\times 2\log 3}$ $x=\dfrac{1}{4}$ **OR/*OF*** $x=\dfrac{\log 6-\log 2}{\log 9\left(2\log 5+\log 4\right)}$ $x=\dfrac{\log 3+\log 2-\log 2}{\log 9\left(\log 100\right)}$ $x=\dfrac{\log 3}{2\times 2\log 3}$ $x=\dfrac{1}{4}$	✓Log law/*wet* **A** ✓Log law/*wet* **A** ✓Simplification/ *Vereenvoudig* **S CA** ✓ $x=\frac{1}{4}$ **CA** ✓Log law/*wet* **A** ✓Log law/*wet* **A** ✓Simplification/ *Vereenvoudig* **S CA** ✓ $x=\frac{1}{4}$ **CA**	(4)
2.3	$x+2yi=\left(-2+6i\right)\left(4-7i\right)$ $=-8+14i+24i-42i^2$ $=-8+38i+42$ $=34+38i$ $x=34$ and/*en* $2y=38$ $y=19$	✓Expansion/*Uitbreiding* **S** ✓$i^2=-1$ **A** ✓x-value/*waardes* **CA** ✓y-value/*waardes* **CA**	(4)
2.4	$z=\sqrt{5}-3i$ $r=\sqrt{\left(\sqrt{5}\right)^2+\left(-3\right)^2}$ $=\sqrt{14}$ $=3,74$ $tan\,\theta=-\dfrac{3}{\sqrt{5}}$ $\theta=-53,3^\circ$ or/*of* $\theta=360^\circ-53,3^\circ=306,7^\circ$ $z=3,74\,cis\,306,7^\circ$	✓Finding/*Vind r* **SF** ✓$r=\sqrt{14}$ / 3,74 **S CA** ✓ $tan\theta=-\frac{3}{\sqrt{5}}$ **A** ✓ $\theta=-53,3^\circ$ **CA** ✓ $z=\sqrt{14}\,cis\,306,7^\circ$ / $z=3,74\,cis\,306,7^\circ$ **CA**	(5)
				[26]

QUESTION/*VRAAG* 3			
3.1	$x = 0$ and/*en* $y = 0$	✓$x = 0$ **A** ✓$y = 0$ **A**	(2)
3.2	$y = 1$	✓ $y = 1$ **A**	(1)
3.3		✓Shape/*Vorm g* **A** ✓*y*-intercept of *g*/ *y-afsnit van g* **CA** ✓Shape/*Vorm h* **A**	(3)
3.4	$x \neq 0,\ x \in R$	✓ $x \neq 0,\ x \in R$ **CA**	(1)
3.5	$x < -1$ or / *of* $x > 0$ **OR/*OF*** $x \in (-\infty;-1)$ or / *of* $x \in (0;\infty)$ **OR/*OF*** $-\infty < x < -1$ or / *of* $0 < x < \infty$	✓$x<-1$ **CA** ✓or/*of* $x>0$ **CA**	(2)
			[9]

QUESTION/*VRAAG* 4			
4.1	$r = \sqrt{(-3)^2 + (-3)^2} = \sqrt{18}$ $y = -\sqrt{18 - x^2}$	✓Value of/*waarde van r* **SF** ✓Accurate equation of *h*/ *Akkurate vergelyking van h* **A**	(2)
4.2	$m = \frac{-3}{-3} = 1$ $m_{\text{tangent}} = -1$ substitute / *vervang* $\text{P}(-3;-3)$ into / *in* $y = mx + c$ $-3 = -(-3) + c$ $-6 = c$ Equation of the tanget / *Vergelyking van die raaklyn* is $y = -x - 6$	✓*m* of the line through origin and P/ *m van die lyn deur oorsprong P* **A** ✓m tangent/raaklyn **CA** ✓Substitution by P/ *Vervanging van P* **SF CA** ✓Equation of the tangent in the form *y=*/*Vergelyking van die raaklyn in die vorm van y=* **CA**	(4)
4.3	$y: -\sqrt{18} \le y \le 0$ **OR / OF** $y \in \left[-\sqrt{18}; 0\right]$ **OR / OF** $y \ge -\sqrt{18}$ and / *en* $y \le 0$	✓✓Accurate answer/ *Akkurate antwoord* **A**	(2)
			[8]

QUESTION/*VRAAG* 5

5.1	$f(x) = ax^2 + bx - 12$ $= a(x+2)(x-6)$ $= a(4x^2 - 4x - 12)$ $= 4ax^2 - 4ax - 12a$ then / *dan* $-12a = -12$ $a = 1$ $b = -4(1) = -4$ **OR/*OF*** $f(-2) = a(-2)^2 + b(-2) - 12 = 0$ $= 4a - 2b - 12 = 0$ $f(6) = a(6)^2 + b(6) - 12 = 0$ $= 36a + 6b - 12 = 0$ $3(4a - 2b - 12) = 0$ $12a - 6b - 36 = 0$.....1 $36a + 6b - 12 = 0$.....2 by elimination / *deur eliminasie*: $48a - 48 = 0$ $a = 1$ then / *dan*, $12(1) - 6b - 36 = 0$ $-6b = 36 - 12$ $b = -4$	✓Substitution/*Vervanging* **SF** ✓Simplification/*Vereenvoudig* **S** ✓Method for *a*/*Metode van a* **M** ✓Method for *b*/*Metode van b* **M**	(4)
5.2	$f(x) = x^2 - 4x - 12$ $x = \frac{-b}{2a} = -\frac{(-4)}{2(1)} = 2$ $f(2) = 2^2 - 4(2) - 12 = 16$ T.P(2; −16) **OR / *OF*** $f'(x) = 2x - 4 = 0$ $x = 2$ $f(2) = 2^2 - 4(2) - 12 = -16$ TP(2; −16) **OR / *OF*** $x = \frac{x_1 + x_2}{2} = \left(\frac{-2+6}{2}\right) = 2$ $f(2) = 2^2 - 4(2) - 12 = -16$ TP(2; −16)	✓Method/Metode **M** ✓x =2 **CA** ✓y = −16 **CA**	(3)

5.3		✓*x*-intercepts/*x-afsnit* **A** ✓*y*-intercept/*y-afsnit* **A** ✓Turning point/*Draaipunt* **CA** ✓Shape/*Vorm* **A**	(4)
			[11]

QUESTION/*VRAAG* 6

6.1	$1+i_{eff}=\left(1+\frac{i_{nom}}{4}\right)^4$ $1+0,08=\left(1+\frac{i_{nom}}{4}\right)^4$ $4\left(\sqrt[4]{1,08}-1\right)=i_{nom}$ $0,0777=i_{nom}$ $7,77\%=i_{nom}$	✓Formula/*Formule* **A** ✓Substitution/ *Vervanging* **SF** ✓Simplification/ *Vereenvoudig* **S** **NPR**	(3)
6.2	$A=P(1-i)^n$ $45=90(1-0,05)^n$ $0,5=0,95^n$ $n=log_{0,95}0,5$ $n\approx 13,5$ It will take approximately 14 minutes to dissolve to half its original length. *Dit sal ongeveer 14 minute neem om tot die helfte van die oorspronklike lengte op te los.* **Accept 13,5 minutes** ***Aanvaar 13,5 minute***	✓Formula/*Formule* **A** ✓Substitution/ *Vervanging* **SF** ✓Simplification/ *Vereenvoudig* **S CA** ✓Log function/*funksies* **S** ✓14 minutes/*minute* **CA**	(5)
6.3	$A_1=P(1+i)^n$ $=300\,000(1+0,12)^3$ $=\text{R}\,421\,478,4$ $A_2\left(\text{After 3 years / } na\ 3\ jaar\right)=\text{R}421\,478,4+\text{R}65\,000$ $=\text{R}486\,478,4$ For the remaining 4 yrs / *Vir die oorblywende 4 jaar* : $A=A_2(1+i)^n$ $=486\,478,4\left(1+\frac{0,09}{4}\right)^{16}$ $=\text{R}694\,507,00$	✓Formula/*Formule* **A** ✓Substitute/*Vervang P*, *i* and/*en n* **SF** ✓ R 421 478,4 **CA** ✓ R 486 478,4 **CA** ✓Substitution/*Vervang* A_2, *i* and/*en n* **SF CA** ✓Value of/*waarde van A* **CA**	
	OR/OF $A_1=P(1+i)^n(1+i)^m$ $=300\,000(1+0,12)^3\left(1+\frac{0,09}{4}\right)^{16}$ $A_1=\text{R}601\,711,6077$ $A_2=65\,000\left(1+\frac{0,09}{4}\right)^{16}$ $A_2=\text{R}92\,795,39743$ $A=A_1+A_2=\text{R}694\,507,00$	✓Formula/*Formule* **A** ✓Substitute/*Vervang P*, *i* =12% and/*en n*=3 **SF** ✓Substitute/*Vervang* $\frac{0,09}{4}$ and/*en n* =16 **SF** ✓ A_1 = R 601 711,6077 **CA** ✓ A_2 = R92 795,39743 **A** ✓Value of/*waarde van* **A CA**	(6)
			[14]

QUESTION/*VRAAG* 7

NOTE : Deduct 1 mark for incorrect notation from 7.1 to 7.2.2
LET WEL: Trek 1 punt af vir inkorrekte notasie van 7.1 tot 7.2.2

7.1

$$f'(x) = \lim_{h\to 0}\frac{f(x+h)-f(x)}{h}$$
$$f'(x) = \lim_{h\to 0}\frac{[5(x+h)-12]-(5x-12)}{h}$$
$$f'(x) = \lim_{h\to 0}\frac{5x+5h-12-5x+12}{h}$$
$$f'(x) = \lim_{h\to 0}\frac{5h}{h}$$
$$= \lim_{h\to 0} 5$$
$$= 5$$

✓Formula/*Formule* **A**
✓Substitution/*Vervanging* **SF**
✓Simplification/*Vereenvoudig* **S CA**
✓Simplification/*Vereenvoudig* **S CA**
✓ $f'(x) = 5$ **CA** (5)

7.2 7.2.1

$$D_x\left(3\pi + \frac{2}{x^2} - 5x^3\right)$$
$$= D_x\left(3\pi + 2x^{-2} - 5x^3\right)$$
$$= 0 - 4x^{-3} - 15x^2$$

✓$2x^{-2}$ **A**
✓0 **A**
✓$-4x^{-3}$ **CA**
✓$-15x^2$ **A** (4)

7.2.2

$$y = 11x^{-3} + \frac{2}{5}x^{\frac{1}{5}} + \sqrt{x^2}$$
$$y = 11x^{-3} + \frac{2}{5}x^{\frac{1}{5}} + x$$
$$\frac{dy}{dx} = -33x^{-4} + \frac{2}{25}x^{-\frac{4}{5}} + 1$$

✓x **A**
✓$-33x^{-4}$ **A**
✓$\frac{2}{25}x^{-\frac{4}{5}}$ **A**
✓1 **CA** (4)

7.3	7.3.1	$h(x)=3x^2-7x+2$ $h'(x)=6x-7$ $h'(0,5)=6(0,5)-7$ $m_{\text{tangent}}=-4$ $\text{m}_{\text{raaklyn}}=-4$	✓$6x-7$ **A** ✓Substitution/*Vervanging* **SF CA** ✓$m_{\text{tangent}}=-4$ $\text{m}_{\text{raaklyn}}=-4$ **CA**	(3)
	7.3.2	$h(x)=3x^2-7x+2$ $h(1)=3(1)^2-7(1)+2=-2$ $h(3)=3(3)^2-7(3)+2=8$ Av.gradient / Gem. gradiënt $=\frac{h(3)-h(1)}{3-1}$ $=\frac{8+2}{3-1}$ $=5$	✓-2 **A** ✓8 **A** ✓Correct substitution/ *Korrekte vervanging* **SF CA** ✓Simplification / *Vereenvoudiging* **S CA**	(4)
				[20]
QUESTION/*VRAAG* 8				
8.1		$g(x)=x^3-x$ $0=x(x^2-1)$ $0=x(x-1)(x+1)$ $x=0$ or/*of* $x=1$ or / *of* $x=-1$ A$(-1;0)$ B$(1;0)$	✓Substitution by 0/ *Vervanging deur 0* **SF** ✓Factors/*Faktore* **S** ✓Coordinates of A/ *Koördinate van A* **CA** ✓Coordinates of B/ *Koördinate van B* **CA**	(4)
8.2		$f(x)=x^3-x$ $f'(x)=3x^2-1$ $0=3x^2-1$ $\frac{1}{3}=x^2$ $x=\pm\sqrt{\frac{1}{3}}$ or/*of* $\pm 0,58$ $g(0,58)=(0,58)^3-0,577=-0,38$ $g(-0,58)=(-0,58)^3-(-0,58)=0,38$ K$(-0,58;0,38)$ M$(0,58;-0,38)$	✓Derivative/*Afgelei* **A** ✓0 **A** ✓Both *x* values/*Beide waardes van x* **CA** ✓*y* -coordinate of K/ *Koördinate van K* **CA** ✓*y*-coordinate of M/ *Koördinate van M* **CA**	(5)
8.3		$-0,58\le x\le 0,58$	✓$-0,58$ **CA** ✓$0,58$ **CA** ✓Correct notation/*Korrekte notasie* **A**	(3)
				[12]

QUESTION/*VRAAG* 9			
9.1	$V = \pi r^2 h$ $275 = \pi r^2 h$ $\frac{275}{\pi r^2} = h$	✓Formula/*Formule* **A** ✓Substitution/*Vervanging* **SF** ✓*h* the subject/*die onderwerp* **CA**	(3)
9.2	$SA = 2\pi rh + 2\pi r^2$ $SA = 2\pi r \times \frac{275}{\pi r^2} + 2\pi r^2$ $SA = \frac{550}{r} + 2\pi r^2$	✓Formula/*Formule* **A** ✓Substitution/*Vervanging* **SF** ✓Simplification/*Vereenvoudig* **S**	(3)
9.3	$SA = \frac{550}{r} + 2\pi r^2$ $SA = 550r^{-1} + 2\pi r^2$ $S'(r) = -550r^{-2} + 4\pi r$ $0 = -550r^{-2} + 4\pi r$ $550r^{-2} = 4\pi r$ $550 = \frac{4\pi r}{r^{-2}}$ $\frac{550}{4\pi} = r^3$ $\sqrt[3]{\frac{550}{4\pi}} = r$ $3,52 = r$	✓$550r^{-1}$ **A** ✓Derivative /*Afgelei* **A** ✓Derivative = 0 /*Afgelei* **A** ✓Simplification/*Vereenvoudig* **S CA** ✓Radius **CA**	(5)
			[11]

QUESTION/*VRAAG* 10				
10.1	$\int \frac{2x^8 + x^5 - 13x^2}{x^3}\,dx$ $\int 2x^5 + x^2 - \frac{13}{x}\,dx$ $= \frac{1}{3}x^6 + \frac{1}{3}x^3 - 13\ln x + c$		✓Simplification/*Vereenvoudig* **A** ✓$\frac{1}{3}x^6$ **CA** ✓$\frac{1}{3}x^3$ **CA** ✓$-13\ln x$ **CA** ✓c **A**	(5)
10.2	10.2.1	$\int -x^3 + 6x^2 dx$ $= -\frac{x^4}{4} + 2x^3 + c$	✓$-\frac{x^4}{4}$ **A** ✓$2x^3$ **A** ✓c **A**	(3)
	10.2.2	$\lvert A \rvert = \int_1^4 -x^3 + 6x^2 dx$ $= \left\lvert \left[-\frac{x^4}{4} + 2x^3 \right]_1^4 \right\rvert$ $= \left\lvert \left(-\frac{(4)^4}{4} + 2(4)^3 \right) - \left(-\frac{(1)^4}{4} + 2(1)^3 \right) \right\rvert$ $\lvert A \rvert = 64 - 1,75$ $= 62,25$ square units *kwadratiese eenhede*	✓A definite integral formula *'n Definitiewe intergrale formule* **A** ✓Simplification/*Vereenvoudig* **S** ✓Substitution in A by 4/ *Vervanging in A deur 4* **SF CA** ✓Substitution in A by 1/ *Vervanging in A deur 1* **SF CA** ✓Simplification/*Vereenvoudig* **CA**	(5)
				[13]
			TOTAL/*TOTAAL*:	**150**