VRAAG 1

1.1	**A**	**B**	**C**	**D**
1.2	**A**	**B**	**C**	**D**
1.3	**A**	**B**	**C**	**D**
1.4	**A**	**B**	**C**	**D**
1.5	**A**	**B**	**C**	**D**
1.6	**A**	**B**	**C**	**D**
1.7	**A**	**B**	**C**	**D**
1.8	**A**	**B**	**C**	**D**
1.9	**A**	**B**	**C**	**D**
1.10	**A**	**B**	**C**	**D**
1.11	**A**	**B**	**C**	**D**
1.12	**A**	**B**	**C**	**D**
1.13	**A**	**B**	**C**	**D**
1.14	**A**	**B**	**C**	**D**
1.15	**A**	**B**	**C**	**D**

1.15 Verduideliking

Verduideliking:

$f\big(g(x)\big) = x$ Differensieer:

$f'\big(g(x)\big) \times g'(x) = 1$

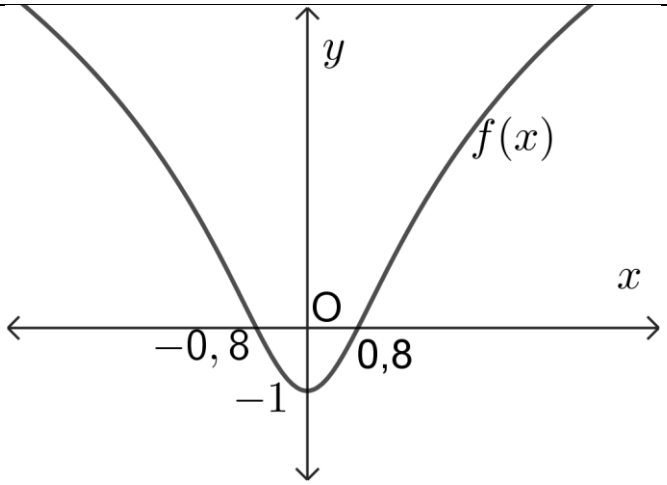
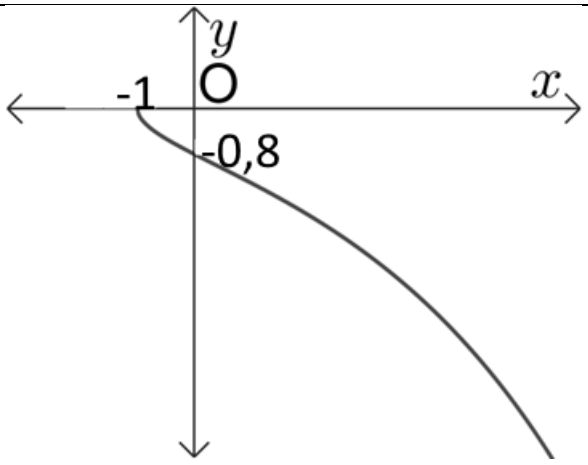
Stel $x = -2$:

$f'\big(g(-2)\big) \times g'(-2) = 1$

Dus $f'(5) \times g'(-2) = 1$

$\frac{1}{2} \times g'(-2) = 1,\ dus\ g'(-2) = 2$

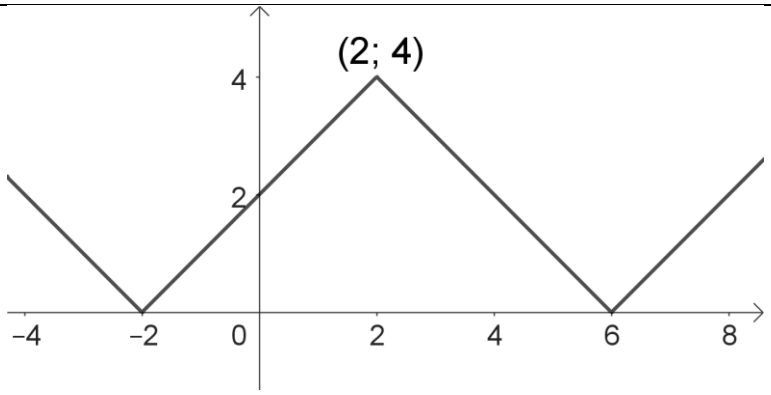
VRAAG 2 **[16 punte]**

2.1	$\ln(x^2+1)=\frac{1}{2}$ $x^2+1=e^{\frac{1}{2}}$ $x=\pm\sqrt{e^{\frac{1}{2}}-1}$ $x=\pm 0,8$	✓ SV ✓Inverse ✓x alleen ✓Antwoord [4]
2.2 (a)	$y=2\ln 1-1$ $y=-1$	✓ $x=0$ ✓ Antwoord en op grafiek [2]
2.2 (b)		✓ beide op grafiek [1]
2.2 (c)	$x=2\ln(y^2+1)-1$ $\frac{x+1}{2}=\ln(y^2+1)$ $y^2=e^{\frac{x+1}{2}}-1$ $y=-\sqrt{e^{\frac{x+1}{2}}-1}$	✓ Ruil x en y ✓ Vereenvoudig ✓ Inverse ✓ Antwoord [4]
2.2 (d)	$x=-1$ en $y=-0,8$	✓✓ Antwoord [2]
2.2 (e)		✓ x-afsnit ✓ y-afsnit ✓ Vorm [3]

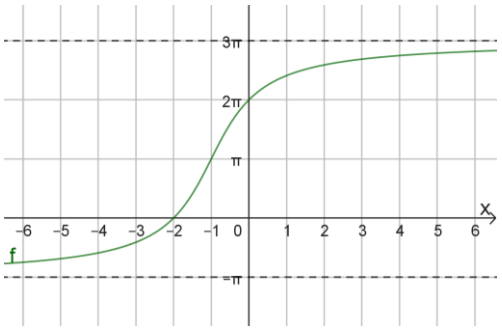
VRAAG 3 **[18 punte]**

3.1	$-\mathbf{1}-\boldsymbol{i}=\sqrt{\mathbf{2}}\mathbf{cis}\left(\frac{5\pi}{4}\right)$ ALT: $-\mathbf{1}-\boldsymbol{i}=\sqrt{\mathbf{2}}\mathbf{cis}\left(\frac{-3\pi}{4}\right)$ $(-\mathbf{1}-\boldsymbol{i})^{\mathbf{4}}=\mathbf{4}\mathbf{cis}\left(\mathbf{5}\boldsymbol{\pi}\right)$ $(-\mathbf{1}-\boldsymbol{i})^{\mathbf{4}}=\mathbf{4}\mathbf{cis}\left(-\mathbf{3}\boldsymbol{\pi}\right)$ $-\sqrt{\mathbf{3}}+\mathbf{1}=\mathbf{2}\mathbf{cis}\left(\frac{5\pi}{6}\right)$ $-\sqrt{\mathbf{3}}+\mathbf{1}=\mathbf{2}\mathbf{cis}\left(\frac{5\pi}{6}\right)$ $\frac{(-1-i)^4}{-\sqrt{3}+i}=\mathbf{2}\mathbf{cis}\left(\frac{25\pi}{6}\right)$ $\frac{(-1-i)^4}{-\sqrt{3}+i}=\mathbf{2}\mathbf{cis}\left(\frac{-23\pi}{6}\right)$	✓✓ Poolvorm ✓Tot 4e mag ✓✓ Poolvorm ✓ Antwoord [6]
3.2	$\boldsymbol{x}^{\mathbf{3}}=-\mathbf{1}=\mathbf{cis}(\boldsymbol{\pi}+\mathbf{2}\boldsymbol{k\pi})$ $\boldsymbol{x}^{\mathbf{3}}=\mathbf{1}\mathbf{cis}(\boldsymbol{\pi})$ of $\mathbf{1}\mathbf{cis}(\mathbf{3}\boldsymbol{\pi})$ of $\mathbf{1}\mathbf{cis}(\mathbf{5}\boldsymbol{\pi})$ $\boldsymbol{x}=\mathbf{1}\mathbf{cis}\left(\frac{\pi}{3}\right)\mathbf{of}\ \mathbf{1}\mathbf{cis}(\boldsymbol{\pi})\ \mathbf{of}\ \mathbf{1}\mathbf{cis}(\frac{5\pi}{3})$ $\boldsymbol{x}=\frac{\mathbf{1}}{\mathbf{2}}+\frac{\sqrt{\mathbf{3}}}{\mathbf{2}}\boldsymbol{i}$ of $\boldsymbol{x}=-\mathbf{1}$ of $\boldsymbol{x}=\frac{\mathbf{1}}{\mathbf{2}}-\frac{\sqrt{\mathbf{3}}}{\mathbf{2}}\boldsymbol{i}$ OF Stel $\boldsymbol{z}^{\mathbf{3}}=-\mathbf{1}=\mathbf{1}\mathbf{cis}(\boldsymbol{\pi}+\mathbf{2}\boldsymbol{k\pi})$ Dus $\boldsymbol{z}=(\mathbf{1})^{\frac{\mathbf{1}}{\mathbf{3}}}\mathbf{cis}(\frac{\boldsymbol{\pi}+\mathbf{2}\boldsymbol{k\pi}}{\mathbf{3}})$, $\boldsymbol{k}=\mathbf{0};\mathbf{1};\mathbf{2}$ $\boldsymbol{k}=\mathbf{0}$: $\boldsymbol{z}=\mathbf{1}\boldsymbol{cis}\left(\frac{\pi}{3}\right)=\frac{\mathbf{1}}{\mathbf{2}}+\frac{\sqrt{\mathbf{3}}}{\mathbf{2}}\boldsymbol{i}$ $\boldsymbol{k}=\mathbf{1}$: $\boldsymbol{z}=\mathbf{1}\boldsymbol{cis}\left(\frac{3\pi}{3}\right)=\boldsymbol{cis}(\boldsymbol{\pi})=-\mathbf{1}$ $\boldsymbol{k}=\mathbf{2}$: $\boldsymbol{z}=\mathbf{1}\boldsymbol{cis}\left(\frac{5\pi}{3}\right)=\frac{\mathbf{1}}{\mathbf{2}}-\frac{\sqrt{\mathbf{3}}}{\mathbf{2}}\boldsymbol{i}$	✓ poolvorm ✓ $+\mathbf{2}\boldsymbol{k\pi}$ ✓✓ 2 A in poolvorm ✓✓ ✓ Antwoorde in reghoekvorm [7]
3.3	$\boldsymbol{x}^{\mathbf{2}}=-\mathbf{1}$ $(\boldsymbol{x}^{\mathbf{2}}+\mathbf{1})$ 'n faktor $\boldsymbol{P}(\boldsymbol{x})=\boldsymbol{x}^{\mathbf{4}}-\boldsymbol{x}^{\mathbf{3}}-\mathbf{5}\boldsymbol{x}^{\mathbf{2}}-\boldsymbol{x}-\mathbf{6}=(\boldsymbol{x}^{\mathbf{2}}+\mathbf{1})(\boldsymbol{x}^{\mathbf{2}}-\boldsymbol{x}-\mathbf{6})$ $\boldsymbol{P}(\boldsymbol{x})=(\boldsymbol{x}^{\mathbf{2}}+\mathbf{1})(\boldsymbol{x}-\mathbf{3})(\boldsymbol{x}+\mathbf{2})$ $\boldsymbol{P}(\boldsymbol{x})=(\boldsymbol{x}-\boldsymbol{i})(\boldsymbol{x}+\boldsymbol{i})(\boldsymbol{x}-\mathbf{3})(\boldsymbol{x}+\mathbf{2})$	✓ $-\mathbf{1}$ ✓ Faktor ✓✓ 2e Faktor ✓ Faktore [5]

VRAAG 4 **[17 punte]**

4.1 (a)	$(\mathbf{2};-\mathbf{4})$	✓ Antwoord [1]
4.1 (b)	$\boldsymbol{y=\lvert 0-2\rvert -4=-2}$ $\boldsymbol{\lvert x-2\rvert =4}$ $\boldsymbol{x-2=\pm 4}$ $\boldsymbol{x=6}$ of $\boldsymbol{x=-2}$	✓ y-afsnit ✓ Stel $\boldsymbol{y=0}$ ✓ $\boldsymbol{\pm 4}$ ✓ Antwoord [4]
4.1 (c)		✓✓ Afsnitte ✓ Knakpunt ✓ Vorm [4]
4.2	$\begin{vmatrix}\mathbf{1} & \mathbf{3} & \mathbf{2}\\ \mathbf{1} & \mathbf{-1} & \mathbf{-1}\\ \mathbf{3} & \mathbf{5} & \mathbf{1}\end{vmatrix}=\mathbf{1(-1+5)-3(1+3)+2(5+3)=8}$ Dus daar is 'n unieke oplossing.	✓ Regte matriks ✓ Bereken matriks ✓ Gevolgtrekking [3]
4.3	$\boldsymbol{(2x)^{9-r}\times\left(-\frac{5}{4x^2}\right)^r=ax^0}$ $\boldsymbol{\therefore 9-r-2r=0}$ $\boldsymbol{r=3}$ $\boldsymbol{\binom{9}{3}(2x)^{9-3}\times\left(-\frac{5}{4x^2}\right)^3=84\times -125=-10\,500}$	✓✓ Twee terme met binomiaal ✓ $\boldsymbol{r=3}$ ✓ Berekening ✓ Antwoord [5]

VRAAG 5 **[23 punte]**

5.1 (a)	$\boldsymbol{AC} = (\mathbf{2};\ \mathbf{2};-\mathbf{1})$ $\boldsymbol{BC} = (\mathbf{3};-\mathbf{2};\ \mathbf{1})$	✓ AC ✓ BC [2]
5.1 (b)	$\boldsymbol{AC}\cdot\boldsymbol{BC} = \mathbf{6}-\mathbf{4}-\mathbf{1} = \mathbf{1}$ $\lvert\boldsymbol{AC}\rvert = \sqrt{\mathbf{4}+\mathbf{4}+\mathbf{1}} = \mathbf{3}$ $\lvert\boldsymbol{BC}\rvert = \sqrt{\mathbf{9}+\mathbf{4}+\mathbf{1}} = \sqrt{\mathbf{14}}$ $\cos \boldsymbol{A\hat{C}B} = (\boldsymbol{AC}\cdot\boldsymbol{BC})/\lvert\boldsymbol{AC}\rvert \times \lvert\boldsymbol{BC}\rvert$ $= \frac{\mathbf{1}}{\mathbf{3}\sqrt{\mathbf{14}}}$ $\boldsymbol{A\hat{C}B} = \mathbf{1,48}$ rad	✓ $\boldsymbol{AB}.\boldsymbol{BC}$ ✓ $\lvert\boldsymbol{AC}\rvert$ ✓ $\lvert\boldsymbol{BC}\rvert$ ✓ Cos Ant ✓ Antwoord [5]
5.2	$\mathbf{3}\overline{\boldsymbol{u}} = \mathbf{6}\boldsymbol{i} - \mathbf{3}\boldsymbol{j} + \mathbf{9}\boldsymbol{k}$ $(\mathbf{3}\overline{\boldsymbol{u}}) \times \overline{\boldsymbol{v}} = \begin{pmatrix} \boldsymbol{i} & \boldsymbol{j} & \boldsymbol{k} \\ \mathbf{6} & -\mathbf{3} & \mathbf{9} \\ -\mathbf{1} & \mathbf{5} & \mathbf{1} \end{pmatrix}$ $= \boldsymbol{i}(-\mathbf{3}-\mathbf{45}) - \boldsymbol{j}(\mathbf{6}+\mathbf{9}) + \boldsymbol{k}(\mathbf{30}-\mathbf{3})$ $= (-\mathbf{48};\ -\mathbf{15};\mathbf{27})$	✓ $\mathbf{3}\overline{\boldsymbol{u}}$ ✓✓✓ Kruisproduk [4]
5.3	$\boldsymbol{y} = \mathbf{4bgtan}(\mathbf{1}) + \boldsymbol{\pi} = \mathbf{2}\boldsymbol{\pi}$ $\mathbf{4bgtan}(\boldsymbol{x}+\mathbf{1}) + \boldsymbol{\pi} = \mathbf{0}$ $\boldsymbol{x}+\mathbf{1} = \mathbf{tan}(-\frac{\boldsymbol{\pi}}{\mathbf{4}});\ \ \boldsymbol{x} = -\mathbf{2}$ Asimptote: $\boldsymbol{y} = \mathbf{4}\times\frac{\boldsymbol{\pi}}{\mathbf{2}} + \boldsymbol{\pi} = \mathbf{3}\boldsymbol{\pi}$ en $\boldsymbol{y} = \mathbf{4}\times -\frac{\boldsymbol{\pi}}{\mathbf{2}} + \boldsymbol{\pi} = -\boldsymbol{\pi}$  	✓ y-afsnit ✓ Bereken x-afsnit ✓x-afsnit ✓ Asimptoot ✓ Asimptoot ✓ Vorm [6]
5.4(a)	$\boldsymbol{BD} = \mathbf{10}$ Pyth $\mathbf{tan}\,\boldsymbol{\theta} = \frac{\mathbf{10}}{\mathbf{10}\sqrt{\mathbf{3}}};\boldsymbol{\theta} = \frac{\boldsymbol{\pi}}{\mathbf{6}}$	✓ BD ✓$\mathbf{tan}\,\boldsymbol{\theta} = \frac{\mathbf{10}}{\mathbf{10}\sqrt{\mathbf{3}}}$ [2]

5.4 (b)	Oppervl ABC = $\frac{1}{2} \times \mathbf{300} \times \frac{\pi}{6} = \mathbf{25\pi}$ Oppervl $\mathbf{\Delta ABD} = \frac{1}{2} \times \mathbf{10\sqrt{3}} \times \mathbf{10} = \mathbf{50\sqrt{3}}$ Oppervl BDC = $\mathbf{50\sqrt{3} - 25\pi}$ $\boldsymbol{a} = \mathbf{50\sqrt{3}}$ en $\boldsymbol{b} = \mathbf{-25}$	✓ Oppervl ABC ✓ Oppervl $\mathbf{\Delta ABD}$ ✓ Oppervl $\boldsymbol{BDC}$ ✓ $\boldsymbol{a}$ en $\boldsymbol{b}$ [4]

VRAAG 6 **[18 punte]**

6.1 (a)	$\boldsymbol{x} = \mathbf{9}$ Want $\boldsymbol{f}(\mathbf{9})$ bestaan nie; Dus verwyderbare diskontinuïteit	✓ Punt ✓ Rede ✓ Tipe [3]
6.1 (b)	$\boldsymbol{x} = \mathbf{2}$ en $\boldsymbol{x} = \mathbf{9}$	✓✓ Antwoorde [2]
6.1 (c)	$\boldsymbol{x} = \mathbf{9}$: want funksie is diskontinu daar. $\boldsymbol{x} = \mathbf{2}$: Rede: $\lim\limits_{x \to 2^-} f'(x) = \lim\limits_{x \to 2^-} (-\mathbf{2}^{\boldsymbol{x}} \ln \mathbf{2}) = -\mathbf{4} \ln \mathbf{2}$ $\lim\limits_{x \to 2^+} f'(x) = \lim\limits_{x \to 2^+} \left(\frac{1}{(x-1) \ln 2}\right) = \frac{1}{\ln 2}$ Die afgeleide bestaan nie by $\boldsymbol{x} = \mathbf{2}$ nie.	✓ $\boldsymbol{x} = \mathbf{9}$ met rede ✓✓limiet van afgeleide links ✓✓limiet van afgeleide regs -1 indien notasie fout [5]
6.2	Stel $\boldsymbol{n} = \mathbf{1}$: Lk = $\boldsymbol{a}$ en RK = $\boldsymbol{a}$. Dus waar vir $\boldsymbol{n} = \mathbf{1}$. Aanvaar bewering waar vir $\boldsymbol{n} = \boldsymbol{k}$: $\boldsymbol{a} + \boldsymbol{ar} + \boldsymbol{ar^2} + \cdots + \boldsymbol{ar^{k-1}} = \frac{\boldsymbol{a(r^k-1)}}{\boldsymbol{r-1}}$ Stel $\boldsymbol{n} = \boldsymbol{k} + \mathbf{1}$: LK = $\frac{\boldsymbol{a(r^k-1)}}{\boldsymbol{r-1}} + \boldsymbol{ar^k}$ $= \frac{\boldsymbol{ar^k - a + ar^k(r-1)}}{\boldsymbol{r-1}}$ $= \frac{\boldsymbol{ar^k - a + ar^{k+1} - ar^k}}{\boldsymbol{r-1}}$ $= \frac{\boldsymbol{ar^{k+1} - a}}{\boldsymbol{r-1}}$ $= \frac{\boldsymbol{a(r^{k+1}-1)}}{\boldsymbol{r-1}}$ = RK Dus bewering waar vir $\boldsymbol{n} = \boldsymbol{k} + \mathbf{1}$ Volgens die beginsel van wiskundige induksie, is die bewering dus waar vir alle $\boldsymbol{n} \in \mathbb{N}$	✓ $\boldsymbol{n} = \mathbf{1}$ ✓ Aanvaar waar ✓✓$\boldsymbol{n} = \boldsymbol{k} + \mathbf{1}$, LK 1e stap ✓ Dieselfde noemer ✓ Vereenvoudig ✓ RK ✓ Rede [8]

VRAAG 7 **[20 punte]**

7.1 (a)	$e^{x^2+\cos x} \times (2x - \sin x)$	✓ e ✓ $2x$ ✓ $-\sin x$ [3]
7.1 (b)	$g(x) = \ln(x-5)^2$ $= 2\ln(x-5)$ $g'(x) = \frac{2}{x-5}$ OF $g'(x) = \frac{2x-10}{x^2-10x+25}$ $= \frac{2(x-5)}{(x-5)^2} = \frac{2}{x-5}$	✓ Faktoriseer ✓ Log wet ✓ Antwoord ✓ Diff ✓ Faktoriseer ✓ Antwoord [3]
7.2	$3y^2.y' - y - xy' = y' + 2x$ $y' = \frac{2x+y}{3y^2-x-1}$ $m = \frac{1}{1} = 1$ $y + 1 = x - 1 \quad \therefore y = x - 2$	✓✓✓ Diff. ✓ $y' =$ ✓ $m = 1$ ✓ Vergelyking [6]
7.3 (a)	$f(1) = 1^2 - \sqrt{4+1}, = -1,24 < 0$ $f(2) = 2^2 - \sqrt{4+2} = 1,55 > 0$ Maar f is kontinu op die interval, dus f het hier 'n nulpunt.	✓ $f(1)$ ✓ $f(2)$ [2]
7.3 (b)	$f'(x) = 2x - \frac{1}{2}(4+x)^{-\frac{1}{2}}$ $a_{n+1} = a_n - \frac{a_n^2 - \sqrt{4+a_n}}{2a_n - \frac{1}{2}(4+a_n)^{-\frac{1}{2}}}$ $a_1 = 1,592$ $a_2 = 1,534885$ $a_3 = 1,533751$ $a_4 = 1,533751$ $x \approx 1,53375$	✓ Differensieer ✓✓ Formule ✓ $a_1 = 1,592$ ✓ Antwoord ✓ Reg afgerond [6]

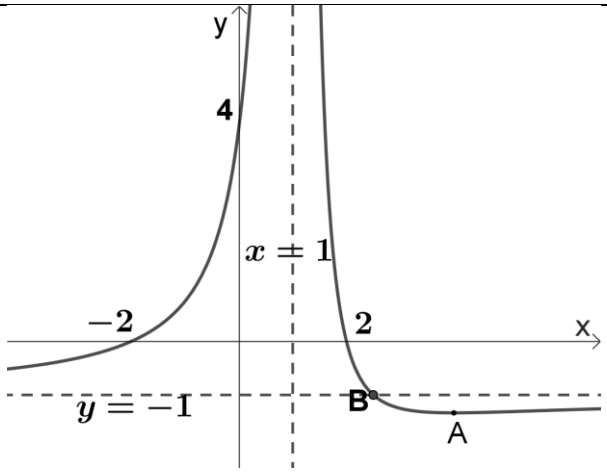
VRAAG 8 **[19 punte]**

8.1	$\Delta x_i = \frac{3}{n}$; $x_i = \frac{3}{n}.i$ $f(x_i) = -(\frac{3}{n}.i)^2 + 6.\frac{3}{n}.i = -\frac{9}{n^2}i^2 + \frac{18i}{n}$ $\sum_{i=1}^{n}\left(-\frac{9}{n^2}i^2 + \frac{18i}{n}\right)$ $= -\frac{9}{n^2}\left(\frac{n^3}{3} + \frac{n^2}{2} + \frac{n}{6}\right) + \frac{18}{n}(\frac{n^2}{2} + \frac{n}{2})$ $= -3n - \frac{9}{2} - \frac{3}{2n} + 9n + 9$ $= 6n + \frac{9}{2} - \frac{3}{2n}$ basis x hoogte $= \frac{3}{n} \times \left(6n + \frac{9}{2} - \frac{3}{2n}\right) = 18 + \frac{27}{2n} - \frac{9}{2n^2}$ $\int_0^3(-x^2 + 6x)\,dx = \lim_{n\to\infty}(18 + \frac{27}{2n} - \frac{9}{2n^2})$ = 18	✓ Δx_i ✓x_i ✓ $f(x_i)$ ✓ sigma i^2 ✓sigma i ✓Vereenvoudig ✓ b x h ✓lim ✓Antwoord (9)
8.2 (a)	$f(x) = \int(4x^3 + 6x^2 - 2)\,dx$ $= x^4 + 2x^3 - 2x + k$ $(0;-1)$: $-1 = (0)^4 - 2(0)^3 - 2(0) + k$ $k = -1$ $f(x) = x^4 + 2x^3 - 2x - 1$	✓✓ Integreer y-afsnit word gegee ✓ $k = 3$ $f(x) = x^4 + 2x^3 - 2x + k$ Voldoende v 2/3 [3]
8.2 (b)	$f'(x) = 2(x+1)^2(2x-1) = 0$ $x = -1$ of $x = \frac{1}{2}$	✓ x- waardes 1e afgeleide [1]
8.2 (c)	$f''(x) = 12x^2 + 12x = 0$ $x = 0$ of $x = -1$	✓ Bepaal f'' ✓ x- waardes 2e afgeleide [2]
8.2 (d)	$x = \frac{1}{2}$	✓ Antwoord [1]
8.2 (e)	$x = -1$: $f''(-2) = 24 > 0$ $f''\left(-\frac{1}{2}\right) = -3 < 0$ Dus buigpunt want teken van $f''(a)$ verkil weerskante van $x = -1$	✓ Antwoord ✓✓ Motivering [3]

VRAAG 9 **[19 punte]**

9.1	$\frac{\tan(4x+1)}{4} - \frac{\operatorname{cosec} 3x}{3} + \pi x + k$	✓ tan ✓ $\div 4$ ✓ cot ✓ $\div 3$ ✓ $\pi x + k$ (5)
9.2	Stel $\frac{8x^2-x-2}{(4x^2+1)(x+4)} = \frac{Ax+B}{4x^2+1} + \frac{C}{x+4}$ $8x^2 - x - 2 = (Ax + B)(x + 4) + C(4x^2 + 1)$ Stel $x = -4$: $130 = C(65)$; $C = 2$ x^2: $A + 4C = 8$; $A = 0$ x: $4A + B = -1$ of $4B + C = -2$; $B = -1$ $\int \left(-\frac{1}{(2x)^2+1} + \frac{2}{x+4}\right) dx$ $= \frac{\text{bgtan}(2x)}{2} + 2\ln\lvert x + 4\rvert + k$	✓ Pars breuke ✓ Maal kgv ✓✓✓ A, B en C ✓✓ bgtan ✓ ln [8]
9.3	Stel $f(x) = x; f'(x) = 1$ $g'(x) = \cos^2 x = \frac{1}{2}[1 + \cos(2x)]$ $\therefore g(x) = \frac{1}{2}x + \frac{1}{4}\sin(2x)$ $\int (x.\cos^2(x))dx$ $= x\left(\frac{1}{2}x + \frac{1}{4}\sin 2x\right) - \int \left(\frac{1}{2}x + \frac{1}{4}\sin 2x\right) dx$ $= x\left(\frac{1}{2}x + \frac{1}{4}\sin 2x\right) - \frac{1}{4}x^2 + \frac{1}{8}\cos 2x + k$	✓ $f(x)$ ✓ $g'(x)$ ✓ Identiteit ✓Integreer ✓Pas formule toe ✓Integreer [6]

VRAAG 10 **[20 punte]**

10.1 (a)	$f'(x) = \frac{-2x(x-1)^2-2(4-x^2)(x-1)}{(x-1)^4} = 0$ $(x-1)(-2x^2+2x-8+2x^2) = 0$ $x \neq 1$, dus $2x-8=0$ ALT: $2x^2-10x+8=0$ $x = 4$ $\therefore x^2-5x+4=(x-4)(x-1)=0$ $y = -\frac{4}{3}$ $\therefore x = 4$ OF Vereenvoudig: $2x^2-10x+8=0$ $(x-1)(x-4)=0$	✓✓ $f'(x)=0$ ✓ Vereenvoudig ✓ $x=4$ ✓ $y=-\frac{4}{3}$ [5]
10.1 (b)	$\frac{4-x^2}{(x-1)^2} = -1$ $4-x^2 = -x^2+2x-1$ $x = \frac{5}{2}$	✓ Stel vgl = -1 ✓ Vereenvoudig ✓ Antwoord [3]
10.1 (c)	$x = 1$	✓ Asimptoot (1)
10.1 (d)		✓Asimptote ✓Punt B (2)
10.1 (e)	$V = \pi\int_2^4 \frac{(4-x^2)^2}{(x-1)^4}dx$ OF $V = \pi\int_2^4 \left(\frac{4-x^2}{(x-1)^2}\right)^2 dx$	✓✓ Formule reg (2)
10.2	$\int_1^e \frac{a+\ln x}{x} = 3,5$ OF $= \int_1^e (\frac{a}{x}+\frac{\ln x}{x})\,dx$ $\frac{(a+\ln x)^2}{2}\Big\|_1^e = 3,5$ OF $(a\ln x+\frac{1}{2}(\ln x)^2\Big\|_1^e = 3,5$ $(a+\ln e)^2-(a+\ln 1)^2 = 7$ OF $a(1)+\frac{1}{2}(1) = 3,5$ $(a+1)^2-a^2=7$ $a^2+2a+1-a^2=7$ $2a=6$ $a=3$	✓ Integraal ✓ Stel = 3,5 ✓✓ Integreer ✓Vervang ✓Vereenvoudig ✓ Antwoord (7)