

Graad 10

Vri

Memo - Nov

Vraag 1

1.1.1 $(3p + 2q)^2$
 $= 9p^2 + 12pq + 4q^2$ ✓
elke term ✓ (3)

1.1.2 $\frac{5^{m+n} \cdot 5^m}{5^n}$
 $= 5^{2m}$ ✓
antwoord (1)

1.1.3 $4 \cdot (p^2)^3$
 $= p^4$ ✓
 p^4 ✓
Kofisiënt van $p^4 = 1$ (2) [6]

1.2 3^{x+3}
 $= 3^x \cdot 3^3$ ✓
 $= 13 \times 27$
 $= 351$ ✓
 3^3 ✓
antwoord ✓ [2]

1.3.1 $x(a-b) + (b-a)$
 $= x(a-b) - (a-b)$
 $= (a-b)(x-1)$ ✓
haal minus uit: $-(a-b)$
 $(a-b)(x-1)$ ✓
(2)

1.3.2 $8px - 6py + 12x - 9y$
 $= 2p(4x - 3y) + 3(4x - 3y)$
 $= (4x - 3y)(2p + 3)$ ✓
 $2p(4x - 3y)$
 $3(4x - 3y)$ (3)
 $(4x - 3y)(2p + 3)$

$$\begin{aligned}
 1.3.3 \quad & 12x^2 - 35x + 25x^3 \\
 &= x(12 - 35x + 25x^2) \quad \checkmark \\
 &= x(25x^2 - 35x + 12) \quad \text{of} \quad x(4-5x)(3-5x) \quad (3) \\
 &= x(5x-4)(5x-3) \quad \text{aanrij}
 \end{aligned}$$

niet nodig om de rangschik

$$\begin{aligned}
 1.3.4 \quad & 8x^6y^9 - 1 \\
 & (2x^2y^3 - 1)(4x^4y^6 + 2x^2y^3 + 1) \quad \checkmark \\
 & (2) \quad [10] \\
 & \quad \quad \quad /18/
 \end{aligned}$$

Vraag 2

$$\begin{aligned}
 2.1.1 \quad & (x-7)(x+2) = 10 \\
 & x^2 - 5x - 14 = 10 \quad \checkmark \\
 & x^2 - 5x - 24 = 0 \\
 & (x-8)(x+3) = 0 \quad \checkmark \\
 & x = 8 \text{ of } x = -3 \quad \checkmark \\
 & \quad \quad \quad \checkmark
 \end{aligned}$$

Uitkomst v. haakjes
faktoriiseer
alle x-waardes
(3)

$$\begin{aligned}
 2.1.2 \quad & \frac{2x-1}{3} - \frac{x}{6} = \frac{2x-4}{6} \\
 & 2(2x-1) - x = 2x-4 \quad \checkmark \\
 & 4x-2-x = 2x-4 \\
 & 3x-2 = 2x-4 \\
 & x = -2 \quad \checkmark
 \end{aligned}$$

XKGV
4x-2
antw (3)

$$\begin{aligned}
 2.1.3 \quad & 2.5^{x+1} - 250 = 0 \\
 & 2.5^{x+1} = 250 \quad \checkmark \\
 & 5^{x+1} = 125 \quad \checkmark \\
 & 5^{x+1} = 5^3 \quad \checkmark \\
 & x = 2 \quad \checkmark
 \end{aligned}$$

250
125
5^3
antwoord (4)

$$\begin{aligned}
 2.1.4 \quad & 9x^{\frac{2}{3}} - 4 = 0 \\
 & x^{\frac{2}{3}} = \frac{4}{9} \quad \checkmark \\
 & x = \left(\frac{4}{9}\right)^{\frac{3}{2}} \quad \checkmark \\
 & x = \frac{8}{27} \quad \checkmark
 \end{aligned}$$

\frac{4}{9}
(\frac{4}{9})^{\frac{3}{2}}
antwoord (3)

2.1.5

$$5 \leq 1-2x \leq 11$$

$$4 \leq -2x \leq 10 \quad \checkmark$$

$$-2 \geq x \geq -5 \quad \checkmark$$

manipulatie ✓

antw met tekens (2)

[15]

2.2

$$\frac{x}{t} - \frac{4}{1} = \frac{t+x}{r}$$

$$xr - 4tr = t(t+x) \quad \checkmark$$

XICGV ✓

$$xr - 4tr = t^2 + tx$$

$$xr - tx = t^2 + 4tr \quad \checkmark$$

x's aan 1 kant

$$x(r-t) = t^2 + 4tr$$

faktoriiseer

$$x = \frac{t^2 + 4tr}{r-t} \quad \checkmark$$

antwoord [4]

2.3

$$x = y+2 \quad \text{en} \quad 18 = 3x+y \quad \checkmark$$

vergelijking ✓

$$3x+y=18$$

$$x-y=2$$

$$4x = 20 \quad \checkmark$$

$$x = 5 \quad \checkmark$$

$$4x=20 \quad \checkmark$$

x-waarde

$$5 = y+2$$

y-waarde ✓

$$\therefore y = 3 \quad \checkmark$$

[4]

/23/

Vraag 3

3.1.1

$$T_n = -5n + 29 \quad \checkmark$$

$$-5n \quad \checkmark \quad (2)$$

$$29 \quad \checkmark$$

3.1.2

$$-106 = -5n + 29 \quad \checkmark$$

$$-135 = -5n$$

$$n = 27 \quad \checkmark$$

Instelling ✓

antwoord ✓

(2)

[4]

3.2 $2x+3-(x+1)=7$ ✓ of $4x-(2x+3)=7$ ✓ vergelyking
 $2x+3-x-1=7$ $4x-2x-3=7$ antwoord
 $x=-5$ ✓ $x=5$ ✓ [2]
 16/

Vraag 4
 4.1 $\frac{2169}{347}$ ✓ breuk ✓
 = R6,25 ✓ antwoord ✓ [2]

4.2 $A = P(1+i)^n$ ✓ formule ✓
 $A = 520(1+0,09)^7$ ✓ Instelling: P ✓ i ✓ n ✓
 $A = 950,58$ ✓ Antwoord ✓ [5]

4.3 $T_0 \quad T_2 \quad T_3 \quad T_5$
 $+4000 \quad +3000 \quad +3800$
 $A = 4000(1+0,12)^5 + 3000(1+0,12)^3 + 3800(1+0,12)^2$
 $= R16030,87$ ✓ Instelling: --- [4]
 antwoord: ✓ 11/

Vraag 5
 5.1.1 x-afsmijt: Stel $y=0$
 $0 = x^2 - 4$ $= 0$
 $0 = (x+2)(x-2)$ albei x-waardes ✓
 $x = -2$ of $x = 2$ ✓ elke koördinaat ✓
 $A(-2,0); B(2,0) \quad C(0,-4)$ (5)

S.1.2 $y = -2x - 4$ (2) S.1.3 $y = -2x + c$ gradient
 $0 = -2(2) + c$ instelling

S.1.4 $y = -2x - 4$ $c = 4$ c-waarde
 $y = -2(2) - 4$ instelling $y = -2x + 4$ vergelyking
 $y = -8$ y-waarde
 $\therefore$ BR is 8 eenhede (3)

S.1.5.1 $-2 \leq x \leq 2$ (2)

S.1.5.2 $x < -2$ of $x > 0$ (1) Notasie (2)

S.1.6 $y \geq 4$ $y \in \mathbb{R}$ (1)

S.1.7 $x > 0$ (1) [20]

S.2.1 Sketsblad (4)

S.2.2.1 $g(-2) = \frac{3}{-2} + 1$ Instelling
 $= -\frac{1}{2}$ Antwoord (2) S.2.2.2 $24 = 3 \cdot 2^x$ Instelling
 $8 = 2^x$ antwoord
 $x = 3$ (2)

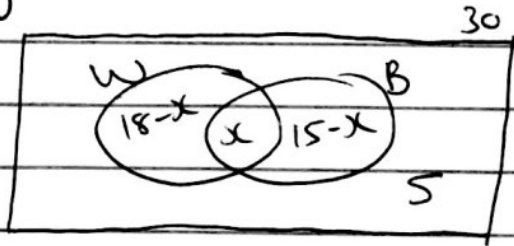
S.2.3 $y = 0$ vergelyking (1)

S.2.4 $x \in \mathbb{R}$ $x \neq 0$ (2)

S.2.5 $f(x) = 3 \cdot 2^{-x}$ of
 $= 3 \cdot \frac{1}{2^x}$ (1) [12]

Vraag 6

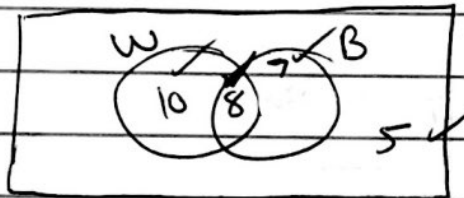
6.1.1



$$18-x + x + 15-x + 5 = 30 \quad \checkmark$$

$$x = 8$$

vergelijking $\checkmark$
 10 $\checkmark$
 8 $\checkmark$
 7 $\checkmark$
 5 $\checkmark$



(5) $\checkmark$

6.1.2 $P(\text{Net } W) = \frac{10}{30}$
 $= \frac{1}{3} \quad \checkmark$

antwoord $\checkmark$ (1)

6.1.3 $P(W \cap B) = \frac{8}{30}$
 $= \frac{4}{15} \quad \checkmark$

antwoord $\checkmark$ (1) [7]

6.2.1 $P(B) = \frac{5}{15} = \frac{1}{3} \quad \checkmark$

antwoord $\checkmark$ (1)

6.2.2 $P(B)' = \frac{2}{3} \quad \checkmark$

antwoord $\checkmark$ (1)

6.2.3 $n(B \cup G) = 10 \quad \checkmark$

antwoord $\checkmark$ (1) [3]

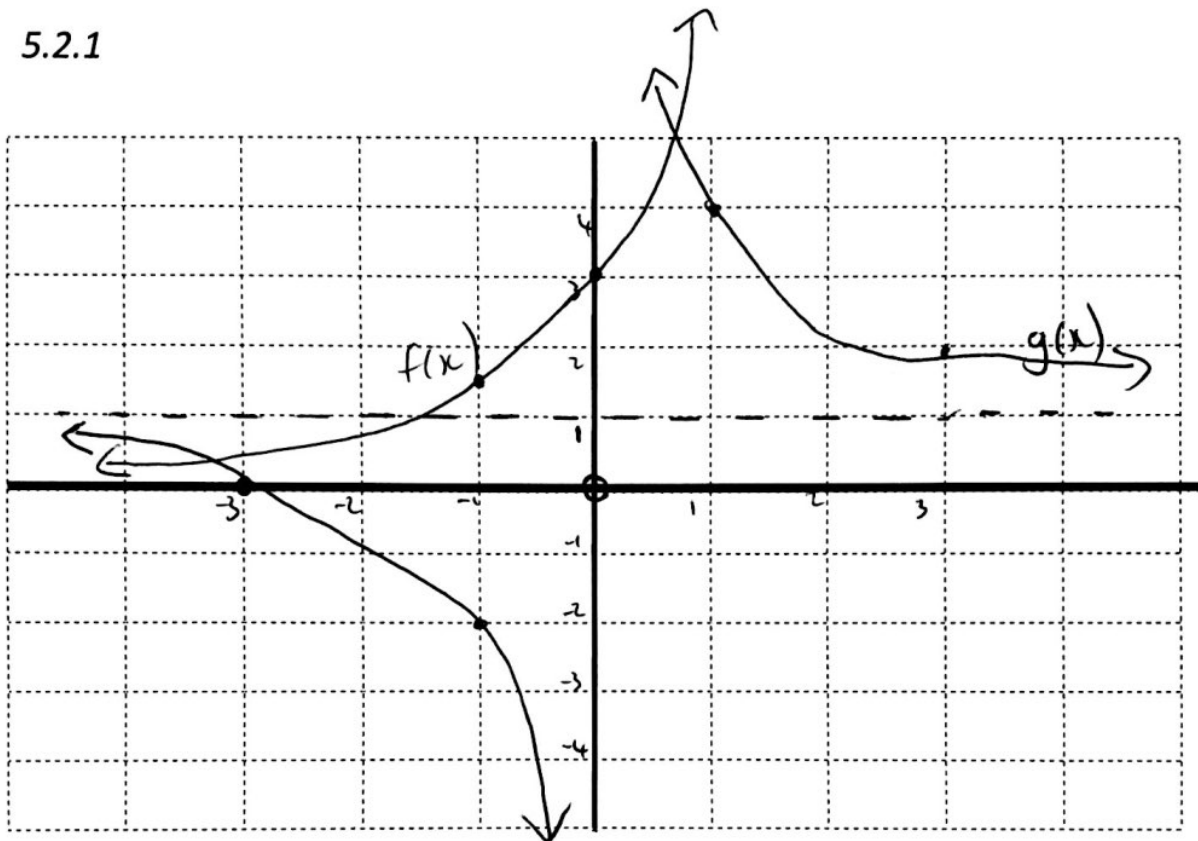
[Total: 100] ¹¹⁰¹

DIAGRAMVEL / DIAGRAM SHEET

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NAAM / NAME

5.2.1



$f(x)$: y-afsnit ✓
verm ✓

$g(x)$: asymptoot ✓
x-afsnit ✓

(4)