Alpha Wiskunde November Eksamen Memorandum

VRAAG 1

1.1	C	(2)
1.2	B	(2)
1.3	B	(2)
1.4	D	(2)
1.5	A	(2)
1.6	C	(2)
1.7	D	(2)
1.8	A	(2)
1.9	B	(2)
1.10	D	(2)
		[20]

VRAAG 2

2.1 $a = 84 - 28$

$= 56$ ① 56

$b = 126 + 84$

$= 210$ ① 210

2.2 $(x+2)^4 = 1x^4 + 4x^3(2)^1 + 6x^2(2)^2 + 4x(2)^3 + 1(2)^4$

$= x^4 + 8x^3 + 24x^2 + 32x + 16$

① Dalende magte van x

① 8 en 24

① 32 en 16

[5]

VRAAG 3

3.1 (a) $3p^2 - 2p - 6q^3 + 7$

(1) $3p^2$
(1) $-2p$

(b) -6

(1) -6

(c) 7

(1) 7

3.2 $\frac{8}{x^2y} + \frac{7}{xy^2}$

(1) x^2y^2

$= \frac{7x + 8y}{x^2y^2}$

(1) $7x$
(1) $8y$

3.3 (a) $2(14 + x^2) - 8x \leq 2x^2 - x$

$28 + 2x^2 - 8x \leq 2x^2 - x$ (1) $28 + 2x^2$

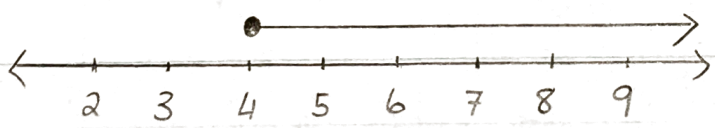
$2x^2 - 2x^2 - 8x + x \leq -28$ (1) $2x^2 - 2x^2 = 0$

$-7x \leq -28$ (1) $-7x$

$x \geqslant \frac{-28}{-7}$ (1) $\geqslant$

$x \geqslant 4$ (1) 4

(b)



(1) •
(1) →

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VRAAG 4

4.1

Magte van 2	256	128	64	32	16	8	4	2	1
Syfers	1	1	0	1	0	0	1	1	0

$\therefore 11010011_2 = 256 + 128 + 32 + 4 + 2$

$= 422_{10}$

(1) $256 + 128$
(1) $32 + 4 + 2$
(1) 422_{10}

4.2 $614 - 512 = 102$

$102 - 64 = 38$

$38 - 32 = 6$

$6 - 4 = 2$

$2 - 2 = 0$

(1) $614 - 512 = 102$ en
$102 - 64 = 38$
(1) $38 - 32 = 6$ en
$6 - 4 = 2$ en
$2 - 2 = 0$

Magte van 2	512	256	128	64	32	16	8	4	2	1
Syfers	1	0	0	1	1	0	0	1	1	0

$\therefore 614_{10} = 1001100110_2$

(1) 1001100110_2

4.3
$$\begin{array}{r} {}^{1}1{}^{1}0{}^{1}1{}^{1}1{}^{1}1 \\ 0100110 \\ \hline 10010101 \end{array} +$$

(1) $1 + 0 = 1$ en
$1 + 1 = 10$
(1) $1 + 1 + 1 = 11$ en
$1 + 1 + 0 = 10$
(1) $1 + 0 + 0 = 1$ en
$1 + 1 = 10$ en
$1 + 1 + 0 = 10$

4.4 (a) $DA7_{16}$

$= 13 \times 16^2 + 10 \times 16 + 7$

(1) 13×16^2
(1) 10×16
(1) 7

4.4(b) $DA7_{16}$

$\therefore 110110100111_2$

(1) 1101
(1) 1010
(1) 0111

[15]

VRAAG 5

5.1 (a) A EN B → Waar

(1) Waar

(b) A OF B → Onwaar

(1) Onwaar

5.2 $7!$ = 5040 maniere

(1) $7!$
(1) 5040

5.3 $2 \times 4 \times 3 = 24$ maniere

(1) $2 \times 4 \times 3$
(1) 24

5.4 $12 \times 11 \times 10 \times 9 \times 8 = 95\,040$ maniere

(1) $12 \times 11 \times 10 \times 9 \times 8$
(1) 95 040

5.5 $10 \times 9 \times 8 \times 26 \times 25 = 468\,000$

(1) $10 \times 9 \times 8$
(1) 26×25
(1) 468 000

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VRAAG 6

6.1 $\frac{4}{5}x + 12 = 40$

$\frac{4}{5}x = 40 - 12$

$\frac{4}{5}x = 28$

$x = 28 \times \frac{5}{4}$

$x = 35$

(1) $\frac{4}{5}x + 12$
(1) $= 40$
(1) 28
(1) 35

6.2 Gestel die loodregte hoogte is x cm.
Dan is die basis $2x$ cm.

$\frac{1}{2} \times b \times h = 36$

$\frac{1}{2} \times x \times 2x = 36$

$x^2 = 36$

$x = 6$ cm

(1) $\frac{1}{2} \times x \times 2x$
(1) $= 36$
(1) 6 cm
$(x \neq -6)$

6.3 Gestel die hoeveelheid Gr. 8-leerders is x.

$\frac{7}{9}x = 88$

$x = 88 \times \frac{9}{7}$

$x = 396$ leerders

(1) $\frac{7}{9}x = 88$
(1) $\times \frac{9}{7}$
(1) 396

6.4 Gestel Larize het Rx betaal per koeldrank.

$x + (x \times \frac{14}{100}) = 12$

$x + \frac{14}{100}x = 12$

$\frac{114}{100} = 12$

$x = 12 \times \frac{100}{114}$

$x = R\,10,53$

(1) $x + (x \times \frac{14}{100})$
(1) $= 12$
(1) R10,53

6.5 Gestel Carla-hulle ry vir x ure.
Dan ry haar boetie $(x-3)$ ure.

$$91x = 112(x-3)$$
$$91x = 112x - 336$$
$$112x - 91x = 336$$
$$21x = 336$$
$$x = 16 \text{ ure}$$

(1) $91x$
(1) $112(x-3)$
(1) $112x - 336$
(1) 16 ure

[17]

VRAAG 7

7.1

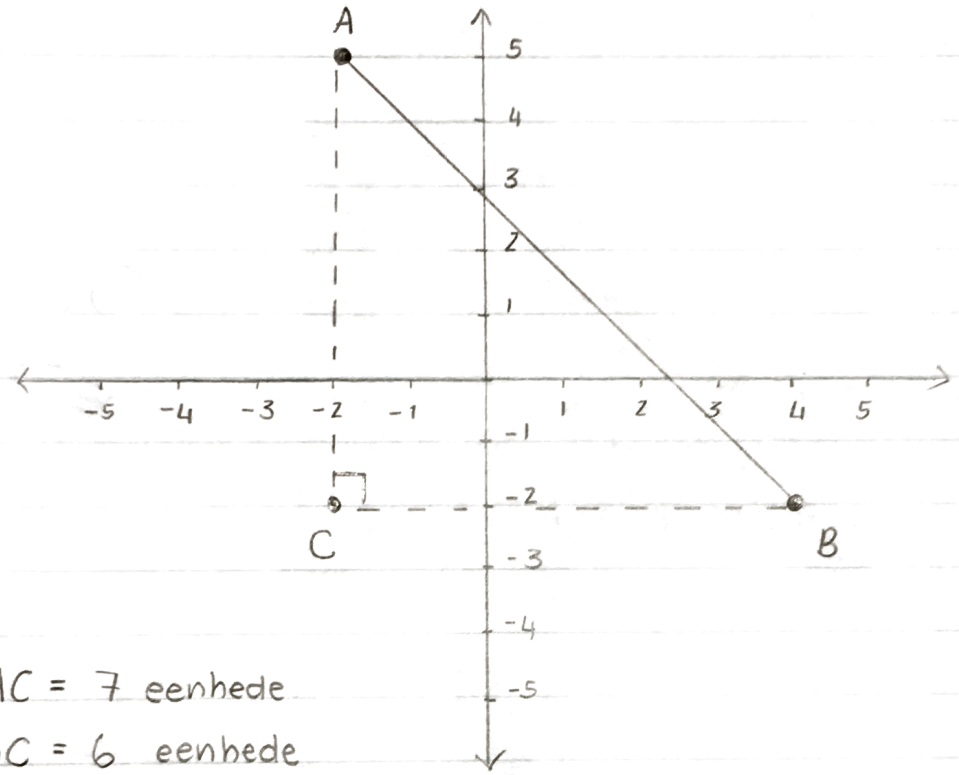
- $754^2 = 568\ 516$
- $304^2 + 690^2 = 568\ 516$

$\therefore$ Die driehoek is reghoekig.

$\therefore$ Die skuinssy is 754 mm.

(1) $754^2 = 568\ 516$
(1) $304^2 + 690^2 = 568\ 516$
(1) reghoekig
(1) skuinssy = 754 mm

7.2



$AC = 7$ eenhede
$BC = 6$ eenhede

$AB^2 = AC^2 + BC^2$ (Pyth.)
$AB^2 = (7)^2 + (6)^2$
$AB^2 = 49 + 36$
$AB^2 = 85$
$AB = \sqrt{185}$

(1) $(7)^2$
(1) $(6)^2$
(1) $\sqrt{185}$

7.3

$x = (11 + 7) \div 2 = 9$
$y = (-5 - 3) \div 2 = -4$

$\therefore (9; -4)$

(1) 9
(1) -4

7.4 Neem enige waarde x en trek 8 daarvan af.

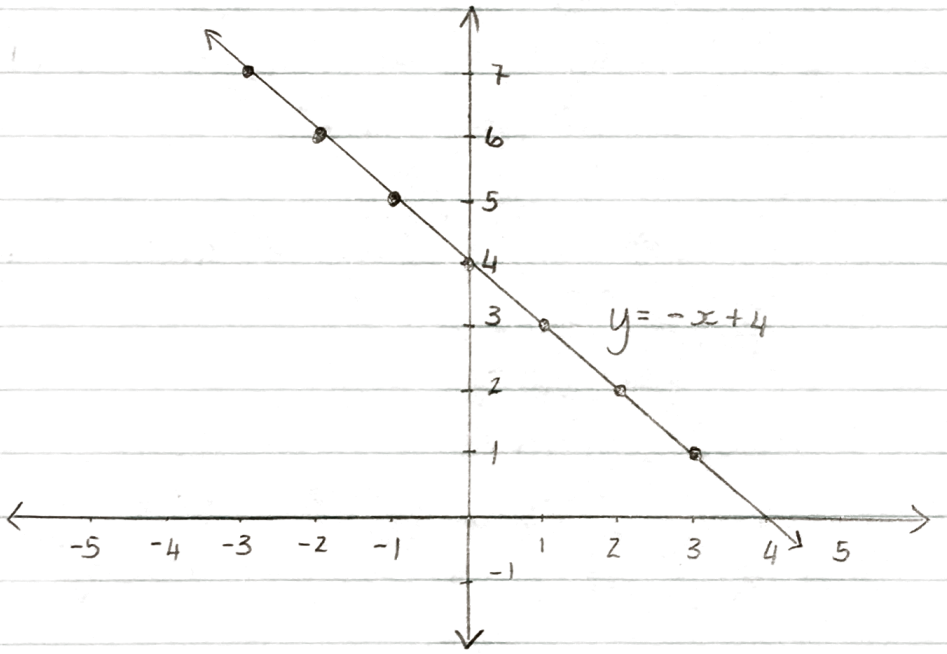
(1) enige waarde x
(1) trek 8 af

7.5 (a) $y = -x + 4$

x	-3	-2	-1	0	1	2	3
y	7	6	5	4	3	2	1

(1) $y = 7$ en $y = 6$
(1) $y = 5$ en $y = 4$
(1) $y = 3$ en $y = 2$ en $y = 1$.

(b)



(1) (-3; 7) en (-2; 6) korrek geplot.
(1) (-1; 5) en (0; 4) korrek geplot.
(1) (1; 3) en (2; 2) en (3; 1) korrek geplot.
(1) koördinate met lyn verbind.

[18]

Groot totaal : 100