Memorandum
Graad 10 - Junie

1.1 3,14 ✓ — ✓ 3,14
1.2 0 ✓ — ✓ 0
1.3 $4\pi+1$ ✓ — ✓ $4\pi+1$
1.4 $\sqrt{-9}$ ✓ — ✓ $\sqrt{-9}$
1.5 $\frac{48}{6}$ ✓ — ✓ $\frac{48}{6}$
[5]

2.1.1 $-11; -15$ ✓ — ✓ altwee (1)

2.1.2 $T_n = -4n+9$ ✓ (2) — ✓ $-4n$ ✓ 9

2.1.3 $T_{20} = -4(20)+9 = -71$ ✓ (2) — ✓ subst ✓ antw

2.1.4 $-4n+9 = -387$ ✓
$-4n = -396$
$n = 99$ ✓ (2) — ✓ subst ✓ n

2.2.1 13 ✓ (1) — ✓ 13
2.2.2 49 ✓ (1) — ✓ 49
2.2.3 37 ✓ (1) — ✓ 37
2.2.4 $T_n = 2n-1$ ✓ (2) — ✓ $2n$ ✓ -1

2.3.1 $T_4 = 4^2+2 = 18$ ✓
$T_5 = 5^2+2 = 27$ ✓ (2) — 18 ✓ 27 ✓

2.3.2 $n^2+2 = 291$ ✓
$n^2 = 289$
$n = 17$ ✓ (2) — ✓ subst ✓ n
[16]

3.1.1 $(3x^2+4y)(2x^2-5y)$
$= 6x^4 - 7x^2y - 20y^2$ ✓ ✓ ✓ (3) — ✓✓✓ elke te

3.1.2 $\left(\frac{1}{2}a^2 - \frac{1}{3a^2}\right)^2$
$= \frac{1}{4}a^4 - \frac{1}{3} + \frac{1}{9a^4}$ ✓ ✓ ✓ (3) — ✓✓✓ elke term

3.2.1 $2x^2-10x+12$
$= 2(x^2-5x+6)$ ✓
$= 2(x-3)(x-2)$ ✓ ✓ (3) — ✓ gemene fakt ✓✓ elke fakt

3.2.2 $18y^2+12y-30ay-20a$
$= 6y(3y+2) - 10a(3y+2)$
$= (3y+2)(6y-10a)$ ✓
$= 2(3y+2)(3y-5a)$ ✓ (3) — ✓ gemene fa ✓ elke onder faktor

3.2.3 $2(a-b)^2-3a+3b$
$= 2(a-b)^2 - 3(a-b)$
$= (a-b)[2(a-b)-3]$ ✓ ✓
$= (a-b)(2a-2b-3)$ ✓ (3) — ✓ $(a-b)$ ✓ [ ] ✓ vereenvoudig

3.2.4 $24x^4+3xy^3$
$= 3x(8x^3+y^3)$ ✓
$= 3x(2x+y)(4x^2-2xy+y^2)$ ✓ ✓ (3) — ✓ gemene fak ✓✓ onder faktore

3.3 $\sqrt{36x^2-24xy+4y^2}$ & $\sqrt{(6x-2y)^2}$
$= \sqrt{4(9x^2-6xy+y^2)}$ ✓
$= \sqrt{4}(3x-y)^2$ ✓
$= 2(3x-y)$ ✓
$= (6x-2y)$ ✓ (4) — ~~gemene faktor~~ ✓ onder faktore ✓ antw
[21]

4.1 $\frac{8x^2+12x}{4x^2-9} \times \frac{2x^2-11x+12}{16x-1}$

$= \frac{4x(2x+3)}{(2x-3)(2x+3)} \times \frac{(2x-3)(x-4)x}{16}$ ✓✓✓ faktore

$= \frac{x^2(x-4)}{4}$ ✓ antw (4)

4.2 $\frac{a}{b} \div \left(\frac{1}{c} - \frac{1}{b}\right)$

$= \frac{a}{b} \div \left(\frac{b-c}{bc}\right)$ ✓ hakie

$= \frac{a}{b} \times \frac{bc}{b-c}$ ✓ resiprook

$= \frac{ac}{b-c}$ ✓ antw (3)

4.3 $\frac{3}{x+1} + \frac{2}{1-x^2}$

$= \frac{3}{x+1} + \frac{2}{(1-x)(1+x)}$ ✓ faktore

$= \frac{3(1-x)+2}{(x+1)(1-x)}$ ✓ teller ✓ kyv

$= \frac{3-3x+2}{(x+1)(1-x)}$

$= \frac{5-3x}{(x+1)(1-x)}$ ✓ antw (4)

[11]

5.1.1 $2x^2 - x = 1$

$2x^2 - x - 1 = 0$ ✓ St vorm

$(2x+1)(x-1) = 0$ ✓ faktore

$x = -\frac{1}{2}$ of $x = 1$ ✓ antw. (3)

5.1.2 $\frac{m}{x} + \frac{n}{2x} = 3m$

$(\times 2x)\ 2m + n = 6mx$ ✓ X kyv

$x = \frac{2m+n}{6m}$ ✓ antw. (2)

5.1.3 $2^{3x} + 2^{3x+2} = 40$

$2^{3x}(1+2^2) = 40$ ✓ faktoriseer

$2^{3x}(5) = 40$

$2^{3x} = 8 = 2^3$ ✓ grondtalle (priemfaktore)

$3x = 3$

$x = 1$ ✓ antw* (3)

5.1.4 $-3 < 2 - 5x \leq 7$

$-5 < -5x \leq 5$ ✓ grense

$1 > x \geq -1$ ✓ tekens omdraai ✓ grense (3)

5.2 $k = \frac{a+1}{a+2}$

$k(a+2) = a+1$ ✓

$ak + 2k = a+1$

$ak - a = 1-2k$

$a(k-1) = 1-2k$ ✓

$a = \frac{1-2k}{k-1}$ ✓ (3)

5.3 $2x + 3y = 8$ ①

$3x + 4y = 11$ ② ✓ X kyv

① x3: $6x + 9y = 24$ ③ ✓ faktore

② x2: $6x + 8y = 22$ ④ ✓ antw

③ − ④ ✓ $y = 2$

✓ $x = 1$ (4)

[18]

① x getal ✓

② x getal ✓

x-waarde ✓

y-waarde ✓

4.1 $b = -1$, ✓ $c = -1$ ✓ (2) b✓ c✓

4.1.2 1 ✓ (1) antw ✓

4.1.3 $0°$; ✓ $90°$; $360°$ ✓ (3) 3 antw ✓✓✓

4.1.4 0 ✓ (1) 0 ✓

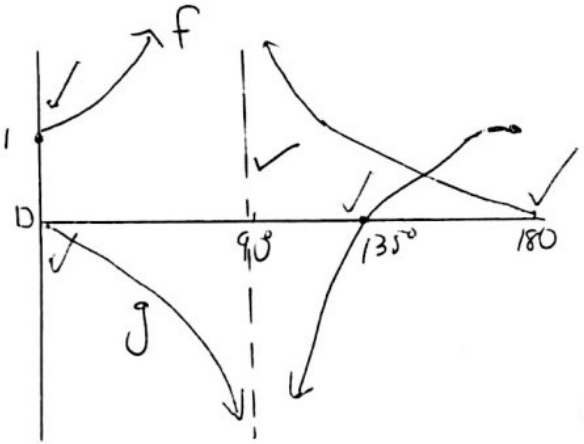
4.1.5 $0° < x < 90°$ ✓ (2) $0° \leq x \leq 90°$ ✓ (-1) N

4.1.6 $\sin x - 1 = -0,6$

$\sin x = 0,4$

$x = 23,58°$ ✓ (1) x-waarde ✓

4.2



(5) asimptoot ✓
f: y-as ✓ x-as ✓
g: y-as ✓ x-as ✓

4.2.1 $180°$ ✓ (1) $180°$ ✓

4.2.2 $x \in \mathbb{R}, x \neq 90°$ $x \in [0, 180)$ $x \neq 90$ (1) $x \neq 90°$ ✓

4.2.3 $90° < x \leq 180°$ ✓ (2) $90° < x$ ✓ $x \leq 180$ ✓

4.2.4 $0°$; ✓ $180°$ ✓ (2) $0°$ ✓; $180°$ ✓

[21]

5.1 $x = 60°$ ✓ (buite ∠ Δ) ✓ (2) $60°$ rede ✓

5.2 Nee ✓ ooreenkomstige ∠e ✓ ≠ (2) Nee, rede ✓

5.3 $7^2 + 20^2 = 449$ ✓

$25^2 = 625$

$25^2 \neq 7^2 + 20^2$

✓ Nie reghoekig (Pyth) ✓ (3) Nee, rede ✓ $5ye^2$ ✓

[7]

6.1 In ΔABC en ΔDEC is:

(1) $BC = CE$ (gegee) ✓

(2) $AC = CD$ (gegee) ✓

(3) $\angle C_1 = \angle A_2$ (verw ∠e $AD \parallel BC$) ✓

$= \angle D_1$ ($AC = CD$) ✓

$= \angle C_3$ (verwis. ∠e) ✓

$\therefore \Delta ABC \equiv \Delta DEC$ (SCS) ✓ (5) ≡ rede ✓

2 redes ✓✓ $\angle C_1 = \angle C$ ✓ volledig redes ✓

6.2 $\Delta A \text{III} \Delta C$ (sye in dieselfde verhouding) ✓ (2) Δe ✓ rede ✓

6.3.1 In ΔPQR en ΔTSR is:

(1) $\angle P = \angle T$ (verw ∠e $PQ \parallel ST$) ✓

(2) $\angle S = \angle Q$ (verw ∠e $PQ \parallel ST$) ✓

(3) $\angle R_1 = \angle R_2$ (regoorst ∠e of binne ∠e Δ) ✓

$\therefore \Delta PQR \text{III} \Delta TSR$ (∠∠∠) ✓ (4) III ∠∠∠ ✓

6.3.2 $\frac{PQ}{TS} = \frac{QR}{SR} = \frac{PR}{TR}$ ✓ ook skaalfaktor 2,5 ✓ $\Delta PQR \text{III} \Delta TSR$

$\frac{12}{x} = \frac{y}{15} = \frac{8}{20}$

$8x = 240$, $x = 30cm$ ✓

$20y = 80$ ✓

$y = 4cm$ (4) [15]

skaalfaktor of verhouding rede ✓ x ✓ y ✓

Memorandum 5m
Gr10 Junie V2

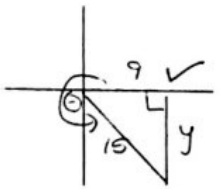
111 $\sin[2(129^\circ) + 51^\circ]$ ✓
$= -0,78$ ✓ (2)

112 $\tan^2(129^\circ - 51^\circ)$ ✓
$= 22,13$ ✓ (2)

121 $2\tan\theta = 2,9$
$\tan\theta = 1,45$ ✓
$\theta = 55,41^\circ$ ✓ (2)

122 $\cos(3\theta + 10^\circ) = \tan 23^\circ$
$= 0,42...$ ✓
$3\theta + 10^\circ = 64,88...$ ✓
$\theta = 18,29^\circ$ ✓ (3)
[9]

211



$y^2 = 15^2 - 9^2$ (Pyth)
$y^2 = 144$
$y = -12$ ✓
(indien nie skets ✓ 1/2) (2)

212 $5\sin\theta + 9\tan^2\theta$
$= 5\left(\frac{-12}{15}\right) + 9\left(\frac{-12}{9}\right)^2$ ✓
$= -4 + 16 = 12$ ✓ (3)

22 $\cos^2 45^\circ . \sin 90^\circ + \tan 60^\circ . \cos 30^\circ$
$\left(\frac{1}{\sqrt{2}}\right)^2 (1) + \sqrt{3} . \frac{\sqrt{3}}{2}$ ✓
$= \frac{1}{2} + \frac{3}{2} = 2$ ✓ (5)
[10]

Sketsv
y ✓
sinθ ✓
tan²θ ✓
antw ✓

31 $\cos 35^\circ = \frac{60}{AC}$ ✓
$AC = \frac{60}{\cos 35^\circ} = 73,25\ m$ ✓ (2)

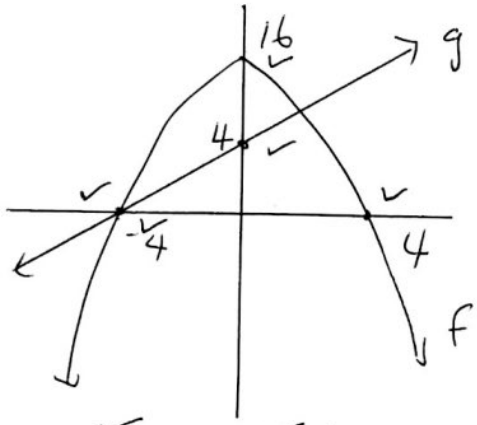
312 $\sin \angle ACD = \frac{53}{73,25}$ ✓
$\angle ACD = 46,35^\circ$ ✓ (2)

313 $\cos 46,35^\circ = \frac{CD}{73,25}$ ✓
$CD = 73,25 \cos 46,35^\circ = 50,56\ m$ ✓ (2)
(of Pyth) (of tan)

32 $\cos 66^\circ = \frac{CD}{10}$ ✓
$CD = 10.\cos 66^\circ = 4,07m$ ✓
$\tan 72^\circ = \frac{30}{DB}$ ✓
$DB = \frac{30}{\tan 72^\circ} = 9,75\ m$ ✓
$CB = 4,07 + 9,75 = 13,82\ m$ ✓ (5)
13,81 ook reg [11]

cos 53° ✓
antw ✓
sin ∠C ✓
∠ ✓
cos
CD ✓
cos 66° ✓
CD ✓
tan 72° ✓
DB ✓
CB ✓

6.1



(5)

Parabool ✓✓ x-as ✓ y-as
lyn x-as ✓ y-as ✓

6.21 $x < -4$ of $x > 4$ / $(-\infty ; -4) \cup (4 ; \infty)$ (2)

$x < -4$ ✓
$x > 4$ ✓

6.22 $x < 0$ / $(-\infty ; 0)$ (1)

$x < 0$ ✓

6.23 $f(0) - g(0) = 16 - 4 = 12$ (1)

12 ✓

6.3 $-x^2 + 16 = x + 4$ ✓
$-x^2 - x + 12 = 0$
$x^2 + x - 12 = 0$ ✓
$(x+4)(x-3) = 0$ ✓
$x = -4$ of 3 ✓
$(-4 ; 0)$ $(3 ; 7)$ ✓

(5)

vgls = ✓
Standaardvr ✓
faktore ✓
x-waardes ✓
koördinate ✓

6.4 $y = x - 1$ ✓ (1)

[15]

✓ y = x - 1

7.1 $q = 1$ ✓
$t = 1$ ✓

$y = \frac{a}{x} + 1$
$(2 ; 0)$ $0 = \frac{a}{2} + 1$ ✓
$a = -2$ ✓

$y = n b^x + 1$
$(0 ; 0)$ $0 = n b^0 + 1$ ✓
$n = -1$ ✓
$y = -b^x + 1$
$(1 ; -1)$ $-1 = -b^1 + 1$ ✓
$b = 1 + 1 = 2$ ✓

(8)

✓ q = 1
✓ t = 1

✓ subs
✓ a

✓ subs
✓ n

✓ subst
✓ b

7.21 $x^2 - 4 = 0$
$x = \pm 2$ ✓
$-x^2 + 1 = 0$
$x^2 - 1 = 0$
$x = \pm 1$ ✓
~~AC~~ $= 3$ ✓
DC.

(3)

7.22 $x^2 - 4 = -x^2 + 1$ ✓
$2x^2 = 5$
$x^2 = \frac{5}{2}$ $x = \sqrt{\frac{5}{2}}$.
$x = \pm 1,58$ ✓
$y = (1,58)^2 - 4$
$= -1,5$ ✓
$E(-1,58 ; -1,5)$ ✓

(4)

[15]

7.1.1. $x+y+2x = 180°$ (ko-binne ∠e AB∥DC) ✓ ✓ ✓

$3x+y = 180°$ (1)

$5y - x = 2x$ (teenoorst. ∠e ∥gram) ✓ ✓

$-3x+5y = 0$ (2)

(1) + (2): $6y = 180°$ ✓

$y = 30°$ ✓

$x = 50°$ ✓

Vgl ✓ rede ✓

Vgl. + rede ✓

y ✓

x ✓

OF $5y - x + x + y = 180°$ (ko-binne ∠e AD∥BC) ✓ ✓

$6y = 180°$

$y = 30°$ ✓

$x + y + 2x = 180°$ (ko-binne ∠e AB∥DC) ✓

$x = 50°$ ✓ (5)

Vgl ✓ rede ✓

y ✓

Vgl + rede ✓

x ✓

7.1.2 $x = 56°$ (ko-binne ∠e AB∥DC) ✓

$y = 62°$ ✓ (hoeklyn halveer ∠) of gelykbenige Δ ( )

x + rede ✓

y ✓

rede ✓

7.1.3 $\angle BDC = 45°$ (hoeklyn ½ voor ∠) ✓

$\angle DFE = 60°$ (binne ∠e Δ = 180°) ✓

$\angle AFB = 60°$ (regoorst ∠e) ✓ (4)

∠BDC ✓

rede ✓

∠DFE + rede ✓

∠AFB + rede ✓

8. $2x + 2y = 180°$ (gestrekte ∠) ✓

$x + y = 90°$ ✓

$\therefore \angle BDF = 90°$

$\angle DFE = 90°$ ✓ (verw ∠e BD∥AE) ✓

$2x+2y = 180°$ ✓

÷ 2 ✓

$\angle DFE = 90°$ ✓

rede ✓

[Indien volledig uitgedruk by $\angle DFE = x+y$, maar nie grade gelyk ¼] [4]