MEMO JUNIE EKSAMEN GR 9 2022

VRAAG 1:

1.1	B	$(6i \cdot 5i = 30i^2 = -30)$	
1.2	A	$(100 \times \frac{2}{1} + \frac{30}{5} = 206)$	
1.3	C	$(\frac{0}{5} = 0)$	
1.4	B	$(30 + 0{,}45(60) = 57\,\text{min})$	
1.5	D	(9 meisies en 22 seuns = 31 laat)	
			5 x (2) = [10]

VRAAG 2:

2.1

2.1.1 $\sqrt{-64} = 8i$ ✓ ✓ (1)

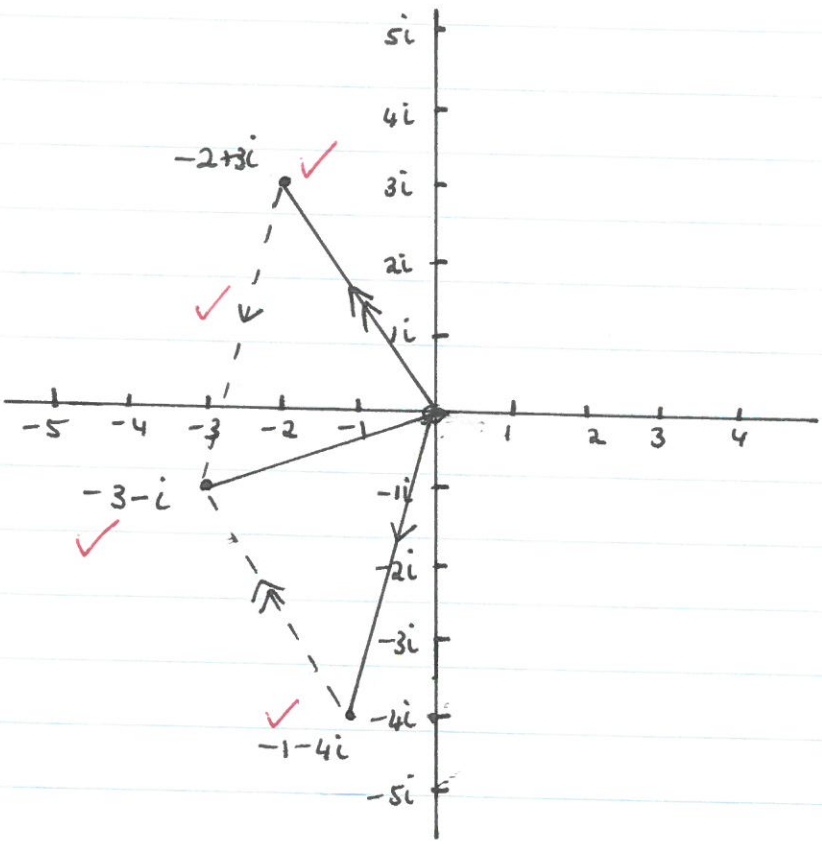
2.1.2 $-2\sqrt{-8} = -2 \cdot 2\sqrt{2}\,i$ ✓

$= -4\sqrt{2}\,i$ ✓ / $-5{,}66i$

✓ $2\sqrt{2}i$

✓ antwoord (2)

2.2



✓ plot $-2+3i$

✓ plot $-1-4i$

✓ voltooi parallelogram

✓ antwoord.

(4)

$-2+3i + (-1-4i) = -3-i$

2·3

2·3·1 $5i(2+12i) = 10i + 60i^2$

$= 10i + 60(-1)$ ✓ 10i

$= 10i - 60$ ✓ −60 (2)

2·3·2 $(4+5i)(-4-5i) = -16 - 25i^2$ ✓ −16

$= -16 - 25(-1)$ ✓ $25i^2$

$= -16 + 25$

$= 9$ ✓ ✓ 9 (3)

2·3·3 $i^2(-2-6i)^2$

$= -1(4 + 24i + 36i^2)$ ✓ $i^2 = -1$

$= -1(4 + 24i - 36)$ ✓ middel term

$= -1(-32 + 24i)$ ✓ vereenvoudig

$= 32 - 24i$ ✓ antwoord (4)

2·3·4 $\frac{4-8i}{2i} \cdot \frac{i}{i}$ ✓ OF $\frac{4-8i}{2i}$

$= \frac{4i - 8i^2}{2i^2}$ $= \frac{2-4i}{i} \cdot \frac{i}{i}$ ✓ $\times \frac{i}{i}$

$= \frac{4i + 8}{-2}$ $= \frac{2i - 4i^2}{i^2}$ ✓ $i^2 = -1$

$= -2i - 4$ $= \frac{2i + 4}{-1}$ ✓ vereenvoudig (3)

$= -2i - 4$

2·3·5 $(7-4i) \cdot (7+4i)$ ✓ 7+4i

$= 49 - 16i^2$ ✓✓ produk

$= 49 + 16$

$= 65$ ✓ antwoord (4)

[23]

VRAAG 3

3.1 $x^2 + 36$

$= x^2 - (-36)$

$= x^2 - 36i^2$

$= (x - 6i)(x + 6i)$ ✓ ✓ (2)

3.2 $2x^2 + 25$

$= (\sqrt{2}\,x - 5i)(\sqrt{2}\,x + 5i)$ ✓ ✓ (2)

3.3 $-4x^2 - 64$

$= -4(x^2 + 16)$ ✓

$= -4(x - 4i)(x + 4i)$ ✓ ✓ (3)

[7]

VRAAG 4:

4.1

$$x + 2 \;\big|\; 2x^3 - 3x^2 - 11x + 6$$

$2x^3 + 4x^2$ ✓

$-7x^2 - 11x$

$-7x - 14x$ ✓

$3x + 6$

$3x + 6$ ✓

res 0 ✓

OF

losgemaakte ko-effisiente

(5)

4.2 $2x^3 + x^2 - 27x - 36 \div x - 4$

4.2.1

✓ 4	2	1	−27	−36
	2	9	9	0 ✓

✓

(3)

res is 0

$\therefore$ $x - 4$ 'n faktor.

4.2.2 Kwosiënt = $2x^2+9x+9$

-3 | 2 9 9

| 2 3 | 0 ✓

(3)

OF $f(-3) = 2(-3)^2+9(-3)+9 = 0$

$\therefore x+3$ faktor

OF langdeling.

4.2.3 $2x^3+x^2-27x-36$

$= (x-4)(2x^2+9x+9)$

$= (x-4)(x+3)(2x+3)$ ✓ ✓ ✓

(3)

[14]

VRAAG 5:

5.1

5.1.1 $y \geq 10$ ✓ (1)

5.1.2 $a = b+3$ ✓ OF $a-3 = b$ (1)

5.1.3 $x \in \mathbb{Z}$ ✓ (1)

5.2

5.2.1 $-14 > x$

$\therefore -14 \leq x$ ✓ (1)

5.2.2 33 is onewe ✓ (1)

5.2.3 $5 \neq -5$ ✓ (1)

5.3.1 Waar ✓ (1)

5.3.2 Onwaar ✓, $\pi \in \mathbb{Q}'$ ✓ (2)

5.3.3 Onwaar ✓, $\sqrt{9} = 3$ ✓ (2)

5.3.4 Waar ✓ (1) [12]

VRAAG 6:

6.1

$$(x+3)^2 - 4(x-1) = 3\left(\frac{x^2}{3}+2\right)+2x+7$$

$LK = (x+3)^2 - 4(x-1)$ ✓

$= x^2 + 6x + 9 - 4x + 4$ ✓ ✓

$= x^2 + 2x + 13$ ✓

$RK = 3\left(\frac{x^2}{3}+2\right) + 2x + 7$

$= x^2 + 6 + 2x + 7$ ✓

$= x^2 + 2x + 13$ ✓

$\therefore LK = RK$. Ja, dit is identiteit ✓ (6)

6.2 $(x+5)^2 \neq x^2 + 5(x+3)$

Gestel $(x+5)^2 = x^2 + 5(x+3)$ ✓

$\therefore x^2 + 10x + 25 = x^2 + 5x + 15$

Dit is onwaar ✓

$\therefore (x+5)^2 \neq x^2 + 5(x+3)$ is waar ✓ (3) [9]

OF (oorspronklike stelling is waar)

TOTAAL [75]