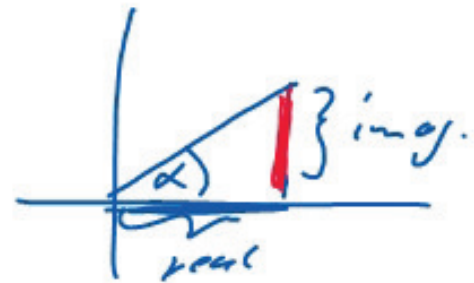


$$1) \quad (3-2i)^2 \cdot [(2-4i)(2+4i) \cdot i] \\
(9-12i+4i^2) [(2^2-(4i)^2) i] \\
(5-12i) \cdot 20i = 100i + 240$$



$$\text{Betrag: } r = \sqrt{100^2 + 240^2} = \sqrt{67600}$$

$$\text{Argument: } \alpha = \arctan \frac{100}{240} + 0\pi$$

$$= \arctan 5/12$$

$$2) \quad \text{Betrag: } \frac{3+2i}{4-i} + \frac{-12-3i}{2i-3} = \frac{(2i+3)(2i-3) - 3(4+i)(4-i)}{(4-i)(2i-3)}$$

$$\frac{-13-3 \cdot 17}{-10+11i} = \frac{-64}{-10+11i} \cdot \frac{-10-11i}{-10-11i} = \frac{640+704i}{221}$$

$$\textcircled{2} = \frac{640}{221} + \frac{704}{221}i \quad \text{Kl. R} \\
\rightarrow r = \sqrt{\frac{640^2 + 704^2}{221^2}}$$

$$\alpha = \arctan \frac{704}{640} + 0\pi$$

Pascal'sche Dreieck $(a+b)^n$

										0
										1
										2
										3
										4 ←
										5

$$(\underline{2} + \underline{3i})^4$$

$$\underline{1} \underline{2}^4 (3i)^0 + \underline{4} \underline{2}^3 (3i)^1 + \underline{6} \underline{2}^2 (3i)^2 + \underline{4} \underline{2}^1 (3i)^3 + \underline{1} \underline{2}^0 (3i)^4$$

$$\underline{16} + \underline{96i} - \underline{216} - \underline{216i} + \underline{81}$$

$$-119 - 120i$$

$$3) (2+i)^4 \cdot 2i - [(8i-2)(-4)]$$

$$1 \cdot 2^4 \cdot i^0 + 4 \cdot 2^3 \cdot i^1 + 6 \cdot 2^2 \cdot i^2 + 4 \cdot 2^1 \cdot i^3 + 1 \cdot 2^0 \cdot i^4$$

$$16 + 32i - 24 - 8i + 1$$

$$-7 + 24i$$

~~$$(-7 + 24i) - (-32i + 8) = -15 + 56i$$~~

$$(-7 + 24i) \cdot 2i - (-32i + 8)$$

$$-14i - 48 + 32i - 8 = -56 + 18i$$

$$r = \sqrt{(-56)^2 + 18^2}$$

$$\alpha = \arctan \frac{18}{-56} + \pi$$

$$= \arctan \frac{9}{-28} + 180^\circ$$