

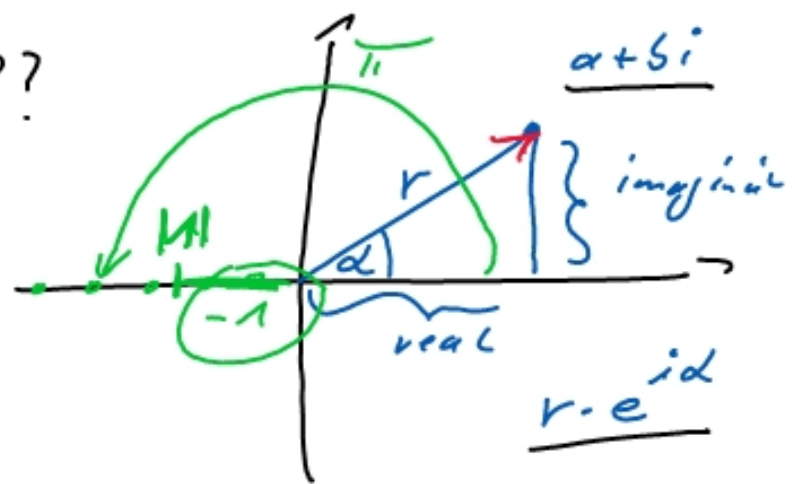
$$1 \cdot e^{i \cdot \pi} = -1$$

↓

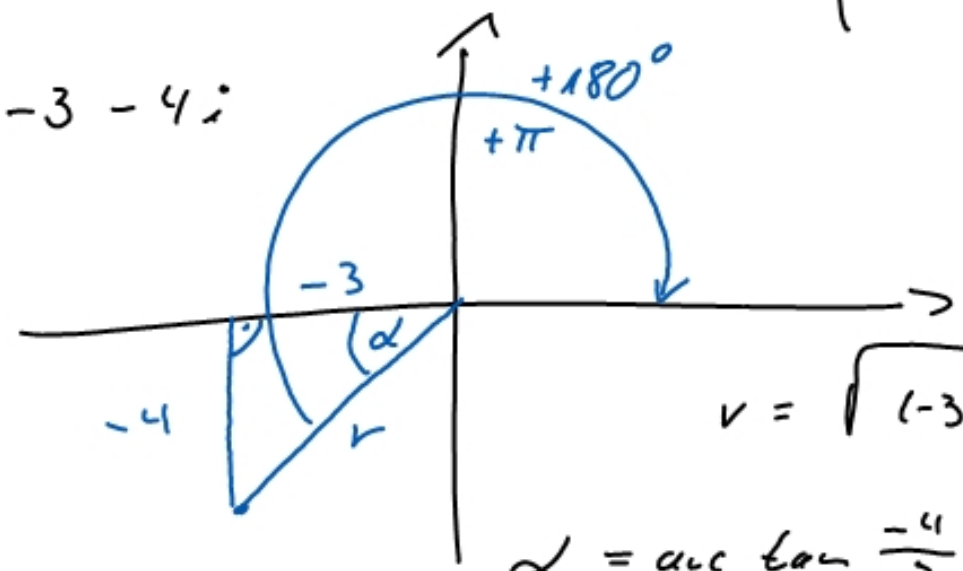
$$(e^{\pi})^i \approx 27^i$$

→  $-1 + 8i$

???



$$z = -3 - 4i$$



$$r = \sqrt{(-3)^2 + (-4)^2} = 5$$

$$\alpha = \arctan \frac{-4}{-3} + \pi$$

$$1) (2i - 1)^4 = (2i - 1)^2 (2i - 1)^2$$

$$1 \cdot 16i^4 - 4 \cdot 8i^3 + 6 \cdot 4i^2 - 4 \cdot 2i + 1$$

$$16 + 32i - 24 - 8i + 1 = -7 + 24i$$

$$\begin{array}{cccccc} & & & & & 1 \\ & & & & 1 & & \\ & & & 1 & 2 & 1 & \\ & & 1 & 3 & 3 & 1 & \\ & 1 & 4 & 6 & 4 & 1 & \end{array}$$

$$2) \frac{3i+2}{2-i} - \frac{4i+3}{3-2i} \quad \left. \begin{array}{l} (2i-1)^2 = 4i^2 - 4i + 1 = -3 - 4i \\ (-3 - 4i)^2 = 9 + 24i + 16i^2 \\ = -7 + 24i \end{array} \right\}$$

$$\frac{(3i+2)(2+i)}{(2-i)(2+i)} = \frac{6i+4+3i^2+2i}{4-i^2} = \frac{1+8i}{5} = \frac{1}{5} + \frac{8}{5}i$$

$$\frac{(4i+3)(3+2i)}{(3+2i)(3+2i)} = \frac{12i+9+6i+8i^2}{9-4i^2} = \frac{1+18i}{13} = \frac{1}{13} + \frac{18}{13}i$$

$$\frac{1}{5} + \frac{8}{5}i - \frac{1}{13} - \frac{18}{13}i = \frac{8}{65} + \frac{99}{65}i$$

$$\frac{4 + 3i}{5 - 2i} \Rightarrow a + bi$$

$\downarrow$     $\downarrow$   
 $a$     $b$

$$\frac{4 + 3i}{5 - 2i} \cdot \frac{5 + 2i}{5 + 2i} = \frac{20 + 15i + 8i + 6i^2}{25 - 4i^2} = \frac{14 + 23i}{29}$$

$(a - bi) \cdot (a + bi) \rightarrow a^2 - b^2$

$$\frac{(i - 12)^5}{29}$$

$$\frac{14}{29} + \frac{23}{29}i$$

$$1i^5 2^0 - 5i^4 2^1 + 10i^3 2^2 - 10i^2 2^3 + 5i^1 2^4 - 1i^0 2^5$$

		1					
		1	1				
		1	2	1			
		1	3	3	1		
		1	4	6	4	1	
		1	5	10	10	5	1

$$i - 10 - 40i + 80 + 80i - 32 = 38 + 41i$$