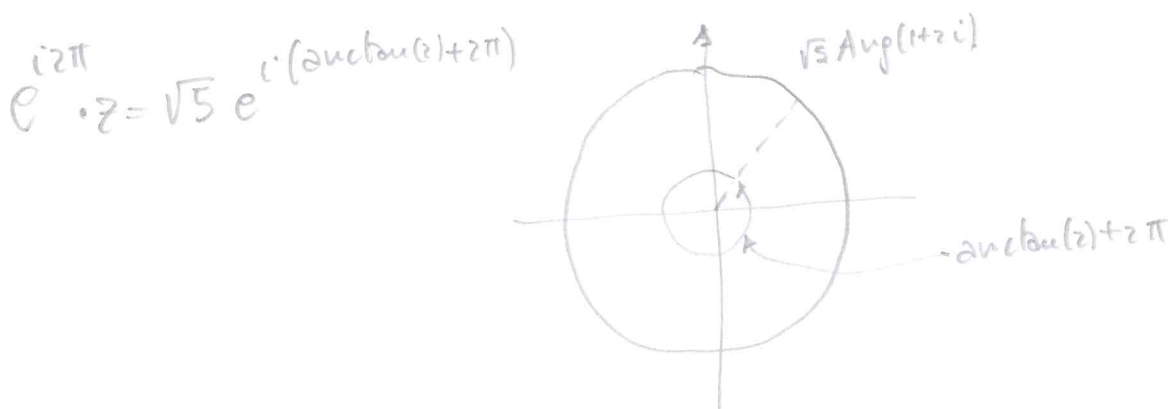
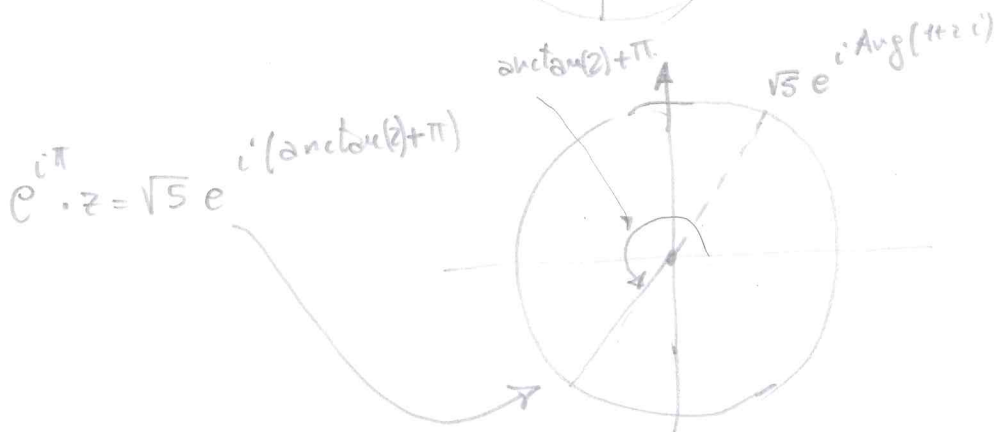
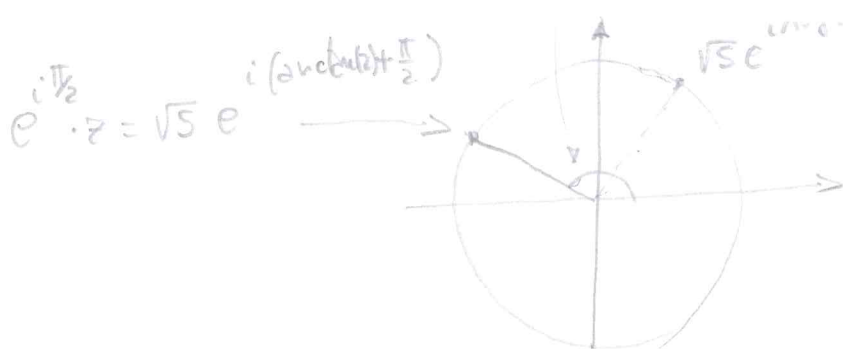
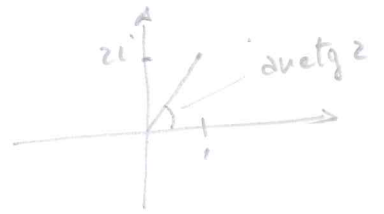
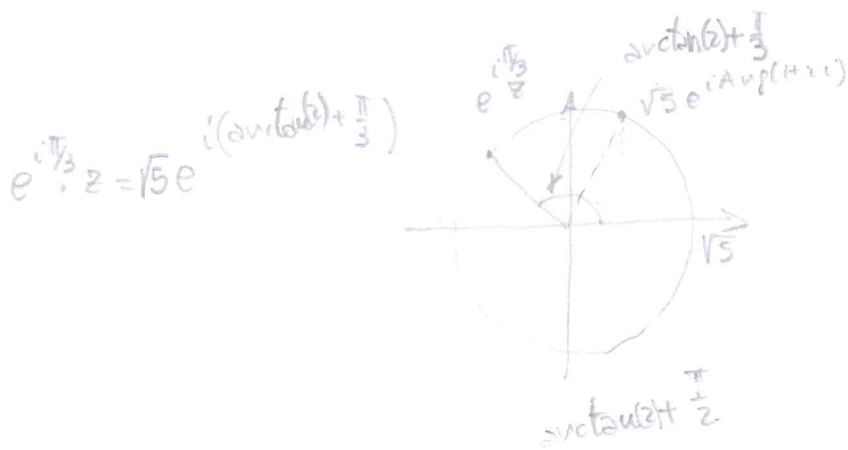


Conversione del 29/10

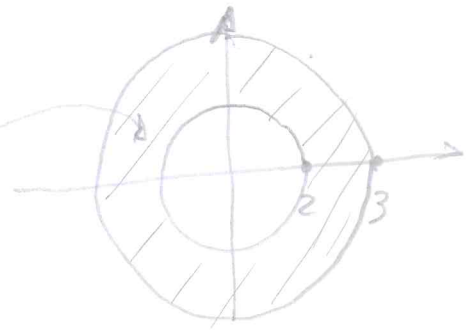
Se $z = 1 + 2i$ allora $z = |1 + 2i| e^{i \text{Arg}(1 + 2i)}$, cioè $z = \sqrt{5} e^{i \arctan(2)}$



ES2

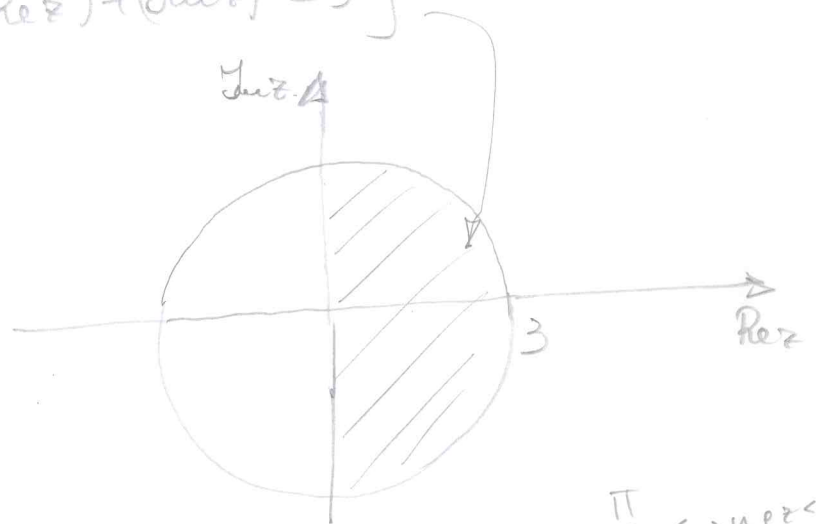
$$(i) \{z \in \mathbb{C} : 2 \leq |z| \leq 3\} = \{z \in \mathbb{C} : 2 \leq \sqrt{(\operatorname{Re} z)^2 + (\operatorname{Im} z)^2} \leq 3\}$$

$$= \{z \in \mathbb{C} : 4 \leq (\operatorname{Re} z)^2 + (\operatorname{Im} z)^2 \leq 9\}$$

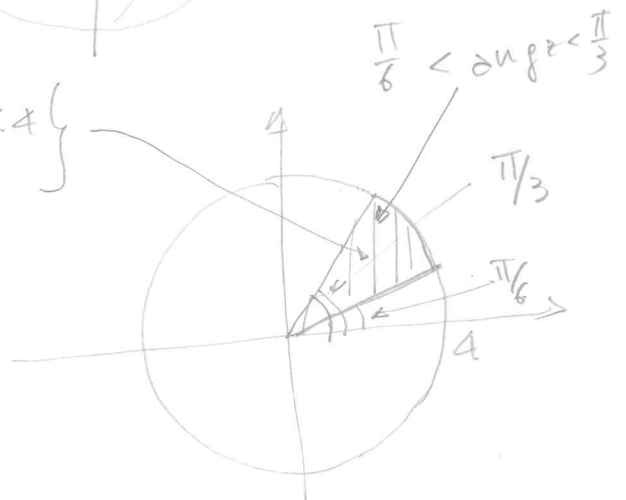


$$(ii) \{z \in \mathbb{C} : \operatorname{Re} z > 0; |z| \leq 3\} = \{z \in \mathbb{C} : \operatorname{Re} z > 0; \sqrt{(\operatorname{Re} z)^2 + (\operatorname{Im} z)^2} \leq 3\}$$

$$= \{z \in \mathbb{C} : \operatorname{Re} z > 0; (\operatorname{Re} z)^2 + (\operatorname{Im} z)^2 \leq 9\}$$



$$(iii) \{z \in \mathbb{C} : \frac{\pi}{6} < \arg z < \frac{\pi}{3}, |z| < 4\}$$

ES3

$$\lim_{x \rightarrow 0} \frac{\sin x - \sin 0}{x - 0} = \lim_{x \rightarrow 0} \frac{\sin x}{x} = 1 \quad ; \quad \text{quanti } D \sin|_{x=0} = 1$$

$$\lim_{x \rightarrow 0} \frac{\cos x - \cos 0}{x - 0} = \lim_{x \rightarrow 0} \frac{\cos x - 1}{x} = \lim_{x \rightarrow 0} \frac{\cos^2 x - 1}{x(\cos x + 1)} = \lim_{x \rightarrow 0} -\frac{\sin^2 x}{x} \lim_{x \rightarrow 0} \frac{1}{1 + \cos x} = 0; \quad \text{quanti } D \cos|_{x=0} = 0$$

$$\lim_{x \rightarrow 1} \frac{x^2 - 1^2}{x - 1} = \lim_{x \rightarrow 1} \frac{\cancel{(x-1)}(x+1)}{\cancel{x-1}} = \lim_{x \rightarrow 1} (x+1) = 2$$

Answer: $Dx^2|_{x=1} = 2.$