

1.2.2 Écrire les nombres complexes ci-dessous sous forme trigonométrique :

a) 1

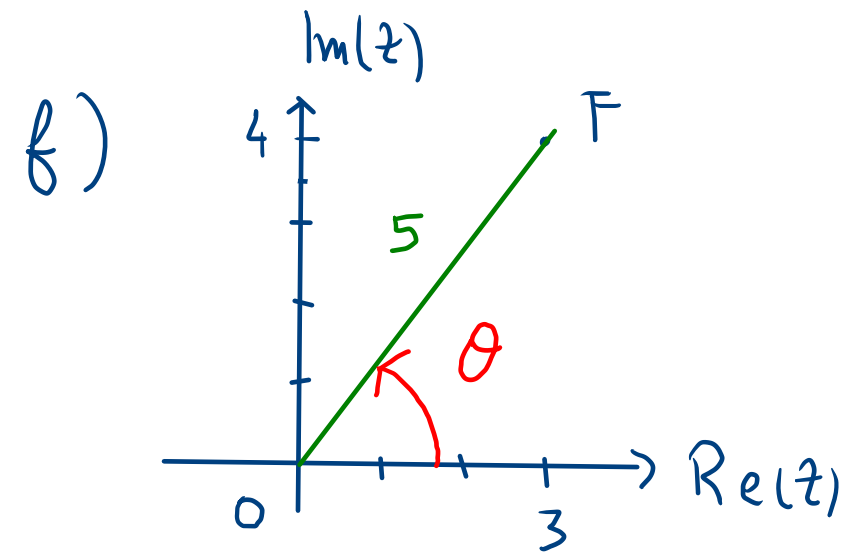
b)  $i$

c)  $-2$

d)  $-1 - i = z_D$

e)  $-1 - \sqrt{3}i$

f)  $3 + 4i = z_F$



$$f) \|\vec{OF}\| = |z_F| = \sqrt{3^2 + 4^2} = 5$$

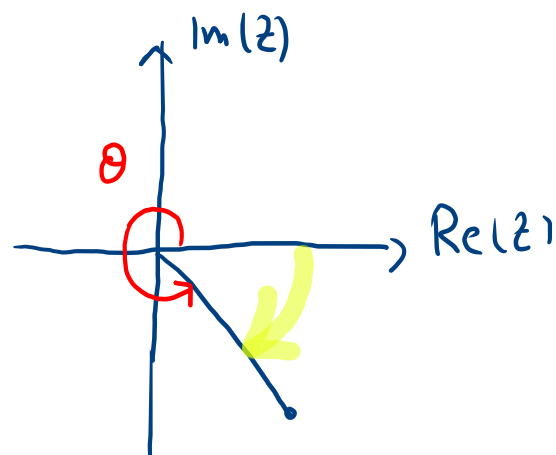
$$z_F = \left[ 5 ; 0.92729522 \right] = 5 \left( \frac{3}{5} + \frac{4}{5} i \right)$$

$$\begin{cases} \sin(\theta) = \frac{4}{5} \\ \cos(\theta) = \frac{3}{5} \end{cases}$$

$$\Rightarrow \theta \simeq 0.92729522 + 2k\pi$$

g)

$$z_G = 5 - 12i \Leftrightarrow G(5; -12)$$



$$\begin{cases} \sin(\theta) = -\frac{12}{13} \\ \cos(\theta) = \frac{5}{13} \end{cases}$$

$$\theta \approx -1.17600521 \quad \text{ou} \quad \theta \approx -67,38^\circ$$

$$\theta = 67,38^\circ \quad \text{ou} \quad \theta = 247,38^\circ$$

3, 4, 5  
5, 12, 13

247, 38°

4, 317597

-67, 38°

$$|z_G| = 13$$

$$z_G = [13; 4, 317597]$$

$$z_G = 13 \left( \underbrace{\frac{5}{13}}_{\cos(\theta)} - \underbrace{\frac{12}{13}i}_{\sin(\theta)} \right)$$

$$z = r(\cos(\theta) + \sin(\theta)i) = [r, \theta]$$

1.2.3 Écrire les nombres complexes ci-dessous sous forme algébrique :

a)  $\left[4; -\frac{\pi}{3}\right] = z_A$

d)  $\left[4; \frac{\pi}{3}\right] = z_D$

b)  $\left[\frac{3}{4}; \frac{3\pi}{4}\right] = z_B$

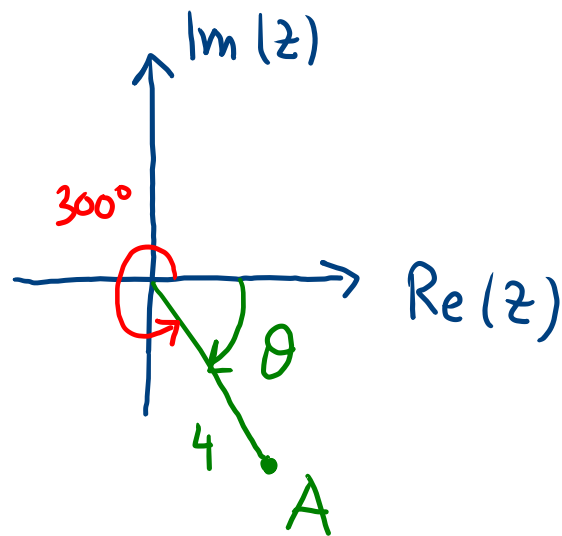
e)  $\left[1; -\frac{\pi}{2}\right] = z_E$

c)  $[\pi; -\pi] = z_C$

f)  $e^{i\pi}$  *à préciser*

2)  $z_A = a + bi = r (\cos(\theta) + \sin(\theta)i) = [r; \theta]$

$|z_A| = r$  et  $\theta$  est l'argument



$$z_A = \left[4; -\frac{\pi}{3}\right] = [4; 300^\circ]$$