

## TP 4 Complejos

### Ejercicio 6. Resolver la siguiente situación problemática

- d) Si se sabe que  $\frac{z_1}{z_2} = 4$ ,  $\|z_1\| + \|z_2\| = 10$  y  $\text{Arg}(z_1) + \text{Arg}(z_2) = \frac{\pi}{3}$ , determinar los números complejos  $z_1$  y  $z_2$  expresados en forma exponencial

$\frac{z_1}{z_2} = 4$	$\frac{(\rho_1)_{\varphi_1}}{(\rho_2)_{\varphi_2}} = 4$	$\frac{\rho_1}{\rho_2} = 4_0$
$\ z_1\  + \ z_2\  = 10$	$\rho_1 + \rho_2 = 10$	
$\varphi_1 + \varphi_2 = \frac{\pi}{3}$		

$\frac{\rho_1}{\rho_2} = 4$	$\begin{cases} \rho_1 - 4\rho_2 = 0 \\ \rho_1 + \rho_2 = 10 \end{cases}$	<i>R. m. am.</i>	$-5\rho_2 = -10$
$\rho_1 + \rho_2 = 10$			$\rho_2 = 2$
		<i>Reemplazando</i>	$\rho_1 = 8$

$\begin{cases} \varphi_1 + \varphi_2 = \frac{\pi}{3} \\ \varphi_1 - \varphi_2 = 0 \end{cases}$			
<i>S. m. a m.</i>	$2\varphi_1 = \frac{\pi}{3}$	$\varphi_1 = \frac{\pi}{6}$	$z_1 = 8\frac{\pi}{6}$
<i>R. m. am.</i>	$2\varphi_2 = \frac{\pi}{3}$	$\varphi_2 = \frac{\pi}{6}$	$z_2 = 2\frac{\pi}{6}$