


(13) A se cere: Si  $a \cos x + b \sin x = A \cos(x+\theta)$ , atunci  $A = \sqrt{a^2+b^2}$

exemplu dare:  $\cos x + \sin x = A \cos(x+\theta)$

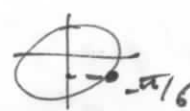
$A = \sqrt{1+1} = \sqrt{2} \Rightarrow \cos x + \sin x = \sqrt{2}(\cos x \cos \theta - \sin x \sin \theta)$

$A = \sqrt{2}$


$\cos x + \sin x = \sqrt{2} \cos \theta \cos x - \sqrt{2} \sin \theta \sin x$

Se identifice:  $\begin{cases} \sqrt{2} \cos \theta = 1 \\ -\sqrt{2} \sin \theta = 1 \end{cases} \Rightarrow \begin{cases} \cos \theta = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \\ \sin \theta = -\frac{1}{\sqrt{2}} = -\frac{\sqrt{2}}{2} \end{cases}$    $\theta = -\frac{\pi}{4}$

$\frac{\sqrt{3}}{2} \cos x + \frac{1}{2} \sin x = A \cos(x+\theta)$   $A = \sqrt{\frac{3}{4} + \frac{1}{4}} = \sqrt{1} = 1$   $A = 1$   
 $= \cos x \cos \theta - \sin x \sin \theta$

$\begin{cases} \cos \theta = \frac{\sqrt{3}}{2} \\ \sin \theta = -\frac{1}{2} \end{cases}$    $\theta = -\frac{\pi}{6}$

$\cos x + \sqrt{3} \sin x = A \cos(x+\theta)$   $A = \sqrt{1+3} = \sqrt{4} = 2$   $A = 2$   
 $= 2 \cos \theta \cos x - 2 \sin \theta \sin x$

$\begin{cases} 2 \cos \theta = 1 \\ -2 \sin \theta = \sqrt{3} \end{cases} \Rightarrow \begin{cases} \cos \theta = \frac{1}{2} \\ \sin \theta = -\frac{\sqrt{3}}{2} \end{cases}$    $\theta = -\frac{\pi}{3}$

$4 \cos x - 3 \sin x = A \cos(x+\theta)$   $A = \sqrt{16+9} = \sqrt{25} = 5$   
 $= 5 \cos \theta \cos x - 5 \sin \theta \sin x$

$\begin{cases} 5 \cos \theta = 4 \\ -5 \sin \theta = 3 \end{cases} \Rightarrow \begin{cases} \cos \theta = \frac{4}{5} \\ \sin \theta = -\frac{3}{5} \end{cases}$   $\theta = \arccos\left(-\frac{3}{4}\right)$  