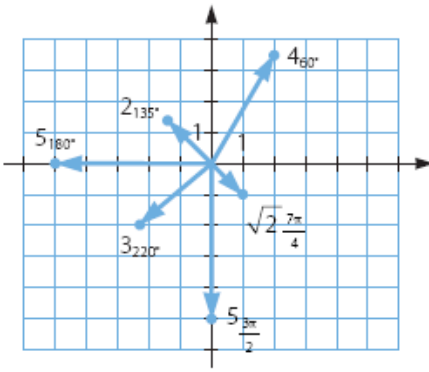
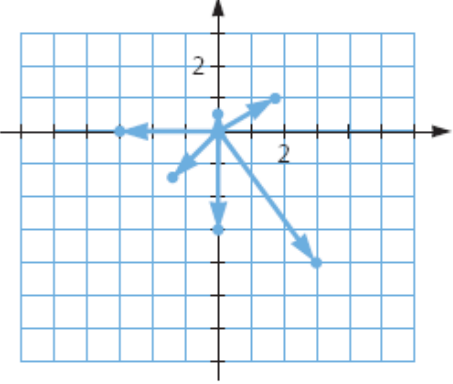


<p>Tema IV 43</p>	<p>a) 4_{60° b) 2_{135° c) 3_{220° d) $\sqrt{2}_{\frac{7\pi}{4}}$ e) 5_{180° f) $\frac{5_{3\pi}}{2}$</p>  <p>A complex plane diagram with a grid. The horizontal axis is the real axis and the vertical axis is the imaginary axis. Five vectors are plotted, all originating from the origin (0,0). Vector 4_{60°} is in the first quadrant. Vector 2_{135°} is in the second quadrant. Vector 3_{220°} is in the third quadrant. Vector $\sqrt{2}_{\frac{7\pi}{4}}$ is in the fourth quadrant. Vector 5_{180°} is along the negative real axis. The grid lines are spaced at 1-unit intervals.</p>
<p>45</p>	<p>a) $3 - 4i = 5_{306^\circ 52' 11,63''}$ b) $\sqrt{3} + i = 2_{30^\circ}$ c) $-\sqrt{2} - \sqrt{2}i = 2_{225^\circ}$ d) $-3i = 3_{270^\circ}$ e) $-3 = 3_{180^\circ}$ f) $\frac{1}{2}i = \frac{1}{2}_{90^\circ}$</p>  <p>A complex plane diagram with a grid. The horizontal axis is the real axis and the vertical axis is the imaginary axis. Five vectors are plotted, all originating from the origin (0,0). Vector 3-4i is in the fourth quadrant. Vector $\sqrt{3} + i$ is in the first quadrant. Vector $-\sqrt{2} - \sqrt{2}i$ is in the third quadrant. Vector -3i is along the negative imaginary axis. Vector -3 is along the negative real axis. The grid lines are spaced at 1-unit intervals.</p>
<p>49 (no examen)</p>	<p>a) $(1-i)^4 = (\sqrt{2}_{315^\circ})^4 = 4_{180^\circ}$ c) $(-1+\sqrt{3}i)^4 = (2_{120^\circ})^4 = 16_{120^\circ}$ b) $(-\sqrt{2}+\sqrt{2}i)^6 = (2_{135^\circ})^6 = 64_{90^\circ}$ d) $(\sqrt{2}-i)^7 = \sqrt{3}_{324^\circ 44' 8,2''}$</p>

57
(no
examen)

a) $\sqrt[6]{-16} = \sqrt[6]{16_{180^\circ}}$

El módulo de las soluciones será la raíz sexta del módulo: $\sqrt[6]{4}$.

Existirán tantos argumentos como indique el radical.

$$\text{Si } k = 0 \rightarrow \beta_1 = \frac{180^\circ + 0 \cdot 360^\circ}{6} = 30^\circ$$

$$\text{Si } k = 1 \rightarrow \beta_2 = \frac{180^\circ + 1 \cdot 360^\circ}{6} = 90^\circ$$

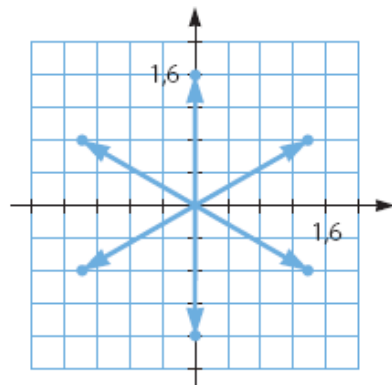
$$\text{Si } k = 2 \rightarrow \beta_3 = \frac{180^\circ + 2 \cdot 360^\circ}{6} = 150^\circ$$

$$\text{Si } k = 3 \rightarrow \beta_4 = \frac{180^\circ + 3 \cdot 360^\circ}{6} = 210^\circ$$

$$\text{Si } k = 4 \rightarrow \beta_5 = \frac{180^\circ + 4 \cdot 360^\circ}{6} = 270^\circ$$

$$\text{Si } k = 5 \rightarrow \beta_6 = \frac{180^\circ + 5 \cdot 360^\circ}{6} = 330^\circ$$

Por tanto, las raíces son $\sqrt[6]{4}_{30^\circ}$, $\sqrt[6]{4}_{90^\circ} = \sqrt[6]{4}i$, $\sqrt[6]{4}_{150^\circ}$, $\sqrt[6]{4}_{210^\circ}$,
 $\sqrt[6]{4}_{270^\circ} = -\sqrt[6]{4}i$ y $\sqrt[6]{4}_{330^\circ}$.



Tema II
49

Respuesta abierta, por ejemplo:

a) $P(x) = (x - 2)(x - 3)(x - 5)$

b) $Q(x) = (x - 4)(x + 2)(x + 1)$

c) $R(x) = (x + 4)(x - 2)^2$