ptc 1

Problem Type Acronym

Use 0.7 mm mechanical pencil. Keep 0.25 inch from edge of box.
Erase thoroughly. Scan at 150 dpi to "<Problem Type Acronym>.gif"

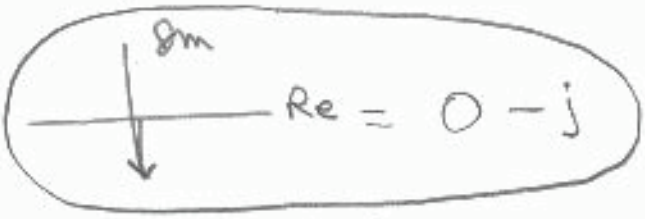
Question

$je^{j\pi}$

draw a picture and express in cartesian form $x+jy$

Answer

$e^{j\pi} =$ 

$je^{j\pi} =$ 

$= 0 - j$

note: in terms of R and θ

$$Re^{j\theta} = je^{j\pi} = e^{j\frac{\pi}{2}}e^{j\pi} = e^{j\frac{3\pi}{2}}$$

$$R = 1 \quad \theta = \frac{3\pi}{2}$$

ptc 2

Problem Type Acronym

Use 0.7 mm mechanical pencil. Keep 0.25 inch from edge of box.
Erase thoroughly. Scan at 150 dpi to "<Problem Type Acronym>.gif"

Question

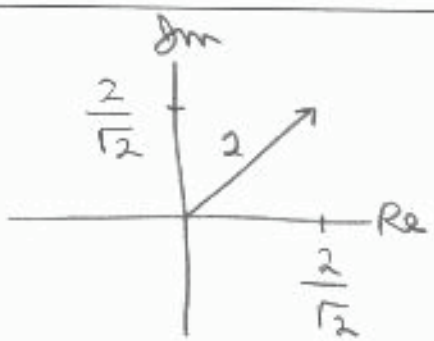
$2e^{j\frac{\pi}{4}}$

draw a picture and express in cartesian form $x+jy$

Answer

$R = 2$

$\theta = \frac{\pi}{4}$



$\frac{2}{\sqrt{2}} = \sqrt{2}$

$\sqrt{2} + j\sqrt{2}$

Use 0.7 mm mechanical pencil. Keep 0.25 inch from edge of box. Erase mistakes thoroughly.

PTC3 — Problem Type Acronym

ERDRIN A. — Name

6 — ID #

Question

EXPRESS THE COMPLEX NUMBER IN CARTESIAN FORM $(x+jy)$ AND DRAW A PICTURE.

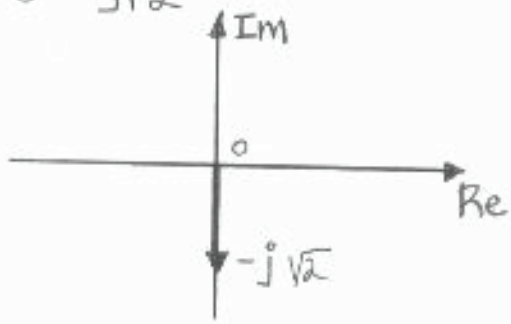
$$\sqrt{2}\, e^{-j\frac{\pi}{2}}$$

Answer

$r=\sqrt{2} \qquad \theta=-\frac{\pi}{2}$

$z=\sqrt{2}\cos\frac{\pi}{2}-j\sqrt{2}\sin\frac{\pi}{2}$

$z=0-j\sqrt{2}$



Use 0.7 mm mechanical pencil. Keep 0.25 inch from edge of box. Erase mistakes thoroughly.

PTC4

Problem Type Acronym

Name

ID #

Question

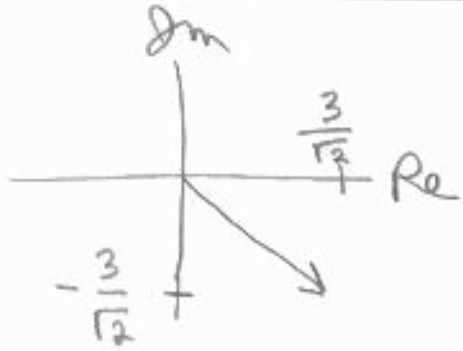
$3e^{-j\frac{\pi}{4}}$

draw a picture and express in cartesian form $x + jy$

Answer

$R = 3$

$\theta = -\frac{\pi}{4}$



$3e^{-j\frac{\pi}{4}} = \frac{3}{\sqrt{2}} - j\frac{3}{\sqrt{2}}$

Use 0.7 mm mechanical pencil. Keep 0.25 inch from edge of box. Erase mistakes thoroughly.

PTC5

Problem Type Acronym | Name | ID #

Question

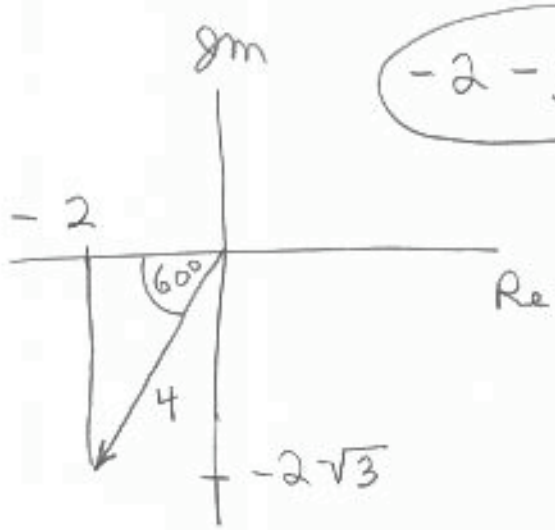
Draw a picture of the phasor

$$4e^{-j\frac{2\pi}{3}}$$

and express it in cartesian form

$$x + jy$$

Answer



$-2 - j2\sqrt{3}$

Use 0.7 mm mechanical pencil. Keep 0.25 inch from edge of box. Erase mistakes thoroughly.

PTC6

Problem Type Acronym | Name | ID #

Question

Convert the following to Cartesian coordinates, $x + jy$.

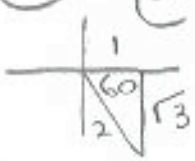
(A) $\left[3e^{\frac{\pi}{2}j} + 3e^{-\frac{\pi}{2}j}\right]$

(B) $e^{2-\frac{\pi}{3}j}$

Answer

(A) $3j - 3j = 0 + 0j$

(B) $e^2 e^{-\frac{\pi}{3}j} = e^2\left(\frac{1}{2} - \frac{\sqrt{3}}{2}j\right) =$



$\frac{e^2}{2} - \frac{e^2\sqrt{3}}{2}j$