

A Summary via Examples

EXAMPLE 1a: Find B and c in the right triangle given in Figure 1. (The triangle might not be drawn to scale.)

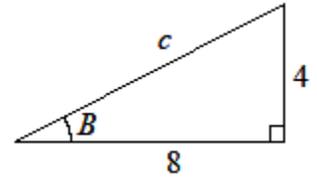


Figure 1

EXAMPLE 1b: Find a and b in the right triangle given in Figure 2. (The triangle might not be drawn to scale.)

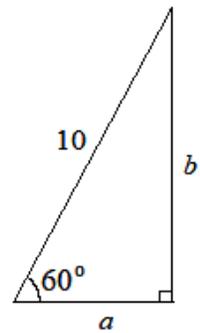
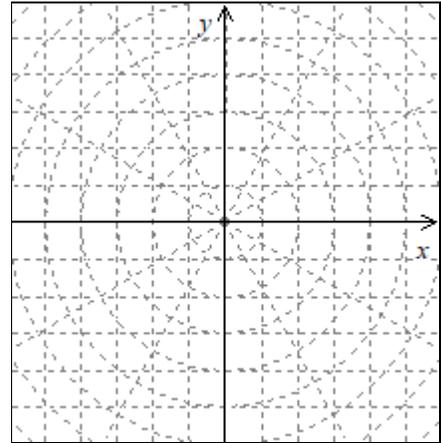
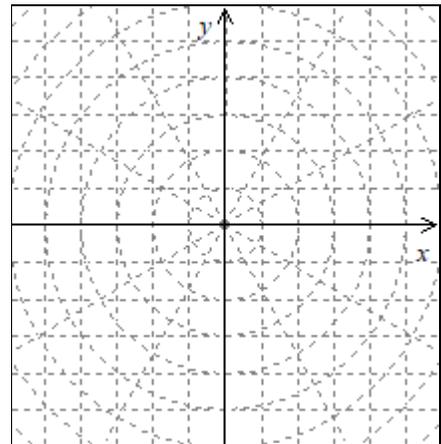


Figure 2

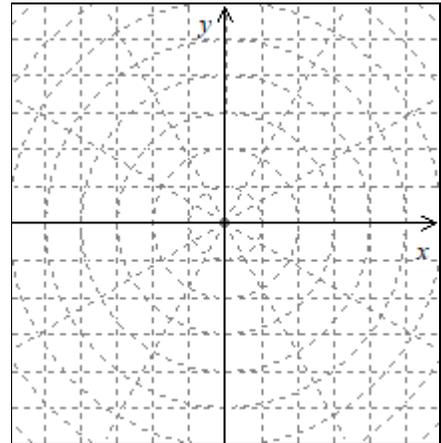
EXAMPLE 2a: Translate the rectangular ordered pair $(-8, -4)$ into polar coordinates (r, θ) .



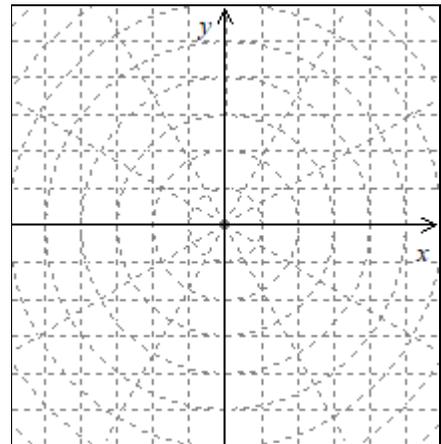
EXAMPLE 2b: Translate the polar ordered pair $(10, \frac{4\pi}{3})$ into rectangular coordinates (x, y) .



EXAMPLE 3a: Find the polar form, $z = r \cdot e^{i\theta}$, of the complex number $z = -8 + 4i$.



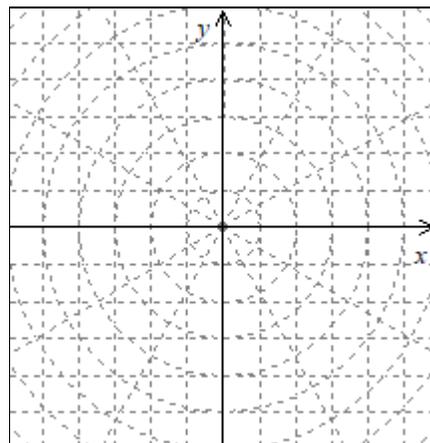
EXAMPLE 3b: Find the rectangular form, $z = a + bi$, of the complex number $z = 10 \cdot e^{i\frac{2\pi}{3}}$.



EXAMPLE 4a: If $\vec{v} = 8\vec{i} - 4\vec{j}$, find

(1) the direction of \vec{v} (measured in degrees with respect to the positive x -axis)

(2) $\|\vec{v}\|$



EXAMPLE 4b: Find the components of the vector \vec{w} if $\|\vec{w}\| = 10$ and \vec{w} has a direction of 300° with respect to the positive x -axis.

