Complex Number in Polar Form Worksheet

MATH MONKS

Find the absolute value.

a $3(\cos \frac{7\pi}{6} + i \sin \frac{7\pi}{6})$

b $\sqrt{21}(\cos \frac{3\pi}{2} + i \sin \frac{3\pi}{2})$

Convert each number to polar form.

c $\sqrt{21} + i\sqrt{7}$

d $6\sqrt{2} - 6\sqrt{2}i$

e $-\sqrt{3} - i$

f $-1 + \sqrt{3}i$

Convert each number to rectangular form.

g $\sqrt{8}[\cos (-\frac{\pi}{3}) + i \sin (-\frac{\pi}{3})]$

h $2(\cos \pi + i \sin \pi)$

i $\sqrt{6}(\cos \frac{\pi}{2} + i \sin \frac{\pi}{2})$

j $3(\cos \frac{11\pi}{6} + i \sin \frac{11\pi}{6})$

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Answers

[a] $3(\cos \frac{7\pi}{6} + i \sin \frac{7\pi}{6})$

[b] $\sqrt{21}(\cos \frac{3\pi}{2} + i \sin \frac{3\pi}{2})$

3

$\sqrt{21}$

Answers

[c] $\sqrt{21} + i\sqrt{7}$

[d] $6\sqrt{2} - 6\sqrt{2}i$

$2\sqrt{7}(\cos \frac{\pi}{6} + i \sin \frac{\pi}{6})$

$12(\cos \frac{7\pi}{4} + i \sin \frac{7\pi}{4})$

[e] $-\sqrt{3} - i$

[f] $-1 + \sqrt{3}i$

$2(\cos \frac{7\pi}{6} + i \sin \frac{7\pi}{6})$

$2(\cos \frac{2\pi}{3} + i \sin \frac{2\pi}{3})$

Answers

[g] $\sqrt{8}[\cos (-\frac{\pi}{3}) + i \sin (-\frac{\pi}{3})]$

[h] $2(\cos \pi + i \sin \pi)$

$\sqrt{2} - \sqrt{6}i$

-2

[i] $\sqrt{6}(\cos \frac{\pi}{2} + i \sin \frac{\pi}{2})$

[j] $3(\cos \frac{11\pi}{6} + i \sin \frac{11\pi}{6})$

$\sqrt{6}i$

$\frac{3\sqrt{3}}{2} - \frac{3}{2}i$