Amplitude-Phase Form of a Sinusoid

Quiz: Amplitude-Phase Form of a Sinusoid.
Put $\cos(\omega t) + \sqrt{3}\sin(\omega t)$ into amplitude-phase form $A\cos(\omega t - \phi)$?

Choices:

a) $2\cos\left(\omega t - \frac{\pi}{4}\right)$

b) $\sqrt{3}\cos\left(\omega\left(t - \frac{\pi}{3}\right)\right)$

c) $2\cos\left(\omega\left(t - \frac{\pi}{3}\right)\right)$

d) $2\cos\left(\omega t - \frac{\pi}{3}\right)$

e) $\sqrt{3}\cos\left(\omega t - \frac{\pi}{3}\right)$

f) $\sqrt{3}\cos\left(\omega t - \frac{\pi}{4}\right)$

Pick what you think is the correct choice and then look at the answer.

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