MAE140 - Linear Circuits - Fall 11
Quick quiz on complex numbers

Instructions

(i) Recall that $a + bj = \sqrt{a^2 + b^2}\, e^{j \arctan(b/a)}$

(ii) $|a + bj| = \sqrt{a^2 + b^2}$ is the magnitude and $\angle(a + bj) = \arctan(b/a)$ is the phase

1. Compute the magnitude and phase of the complex numbers $1 + j$ and $1 - j$

2. Using your answer to Question 1, compute the magnitude and phase of

$$\frac{1 + j}{1 - j}$$

3. Match the numbers in the first column with the numbers in the second one

j	$e^{-j\pi}$
-1	$e^{j\frac{\pi}{6}}$
$\frac{\sqrt{3}}{2} + \frac{j}{2}$	$e^{j\frac{\pi}{2}}$