

Quiz #1 Name: _____
Discussion section #: _____

Student ID: _____

3 pts. Question 1: For frequency ω , what are the impedances associated with:

a) a resistor, R: $Z_R = R$

b) a capacitor, C: $Z_C = \frac{1}{j\omega C} = -\frac{j}{\omega C}$

c) an inductor, L: $Z_L = j\omega L$

3 pts. Question 2: For the current $i(t) = 5\cos(6,283t + \pi/2)\text{mA}$, what are the values of the frequency, f , the phase angle, ϕ , and what is the phasor \underline{I} ?

$$f \cong 1 \text{ kHz}$$

$$\phi = \pi/2 \cong 90^\circ$$

$$\underline{I} = (5 \angle 90^\circ)\text{mA}, \text{ or } (5 \angle \pi/2)\text{mA}, \text{ or } (j5)\text{mA}$$

3 pts. Question 3: If you combine two voltage sources in series with phasors $\underline{V}_1 = 120\text{V} \angle 45^\circ$ and $\underline{V}_2 = 60\text{V} \angle 45^\circ$ into a single voltage source, what is its phasor?

$$\underline{V} = (180 \angle 45^\circ)\text{V}$$