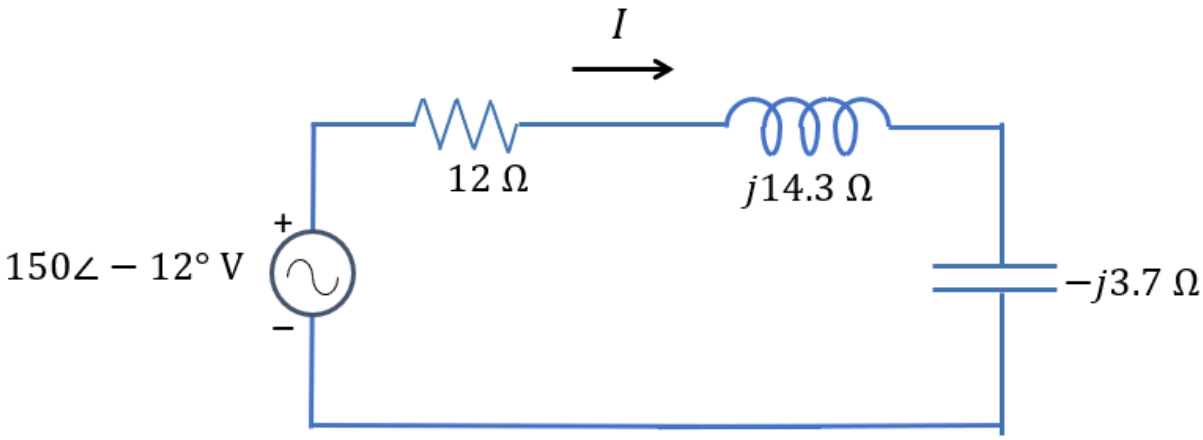
ECEN 460 SPRING 2024 (Birchfield) Quiz 2 23 Jan 2024

Name: _____ UIN: _____ Score: _____



In the circuit above, find

1. The current phasor I, and

$$I = \frac{V}{Z} = \frac{150\angle -12^\circ \text{ V}}{12 + j14.3 - j3.7\ \Omega} = 9.37\angle -53.46^\circ \text{ A}$$

2. The power factor at the source.

$$S = VI^* = (150\angle -12^\circ \text{ V})(9.37\angle -53.46^\circ \text{ A})^* = 1405\angle 41.45^\circ \text{ VA}$$
$$p.f. = \cos(41.45^\circ) = 0.750 \text{ lagging}$$