

# Unit 3 - Basic Circuit Elements and Waveforms

## Course outline

### How to access the portal

### Unit 0

### Basic Circuit Elements and Waveforms

- Basic Concepts
- Sinusoids and Phasors
- Circuit Element - Part 1
- Circuit Elements - Part 2
- AC Power Analysis

### Quiz : Assignment 1

- Assignment 1 - Solution
- Feedback form for week 1

### Mesh and Node Analysis

### Network Theorems -1

### Network Theorems -2

### First Order and Second Order Circuits

### Laplace Transform and its Application

### Circuit Analysis Using Laplace Transform

### Two Port Network

### Sinusoidal Steady State Analysis - 1

### Sinusoidal Steady State Analysis - 2

### State Variable Analysis

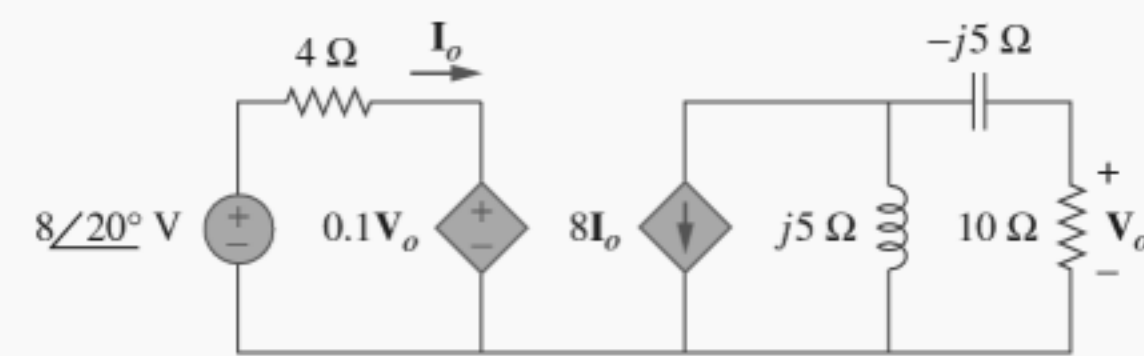
### Analogous Systems

## Assignment 1

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

**Due on 2019-08-14, 23:59 IST.**

1) For the circuit shown below find the average power absorbed by the  $10\Omega$  resistor. 2 points

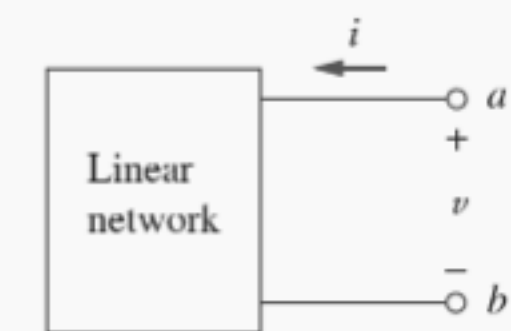


- 80 W
- 160 W
- 320 W
- 640 W

No, the answer is incorrect. Score: 0

Accepted Answers: 160 W

2) For the network shown in the figure assume that the port impedance is  $Z_{ab} = \frac{R}{\sqrt{1+\omega^2 R^2 C^2}} \angle -\tan^{-1} \omega RC$ . Find the average power consumed by the network when  $R = 10\text{k}\Omega$ ,  $C = 200\text{nF}$ , and  $i = 33 \sin(377t + 22^\circ)\text{mA}$ . 2 points

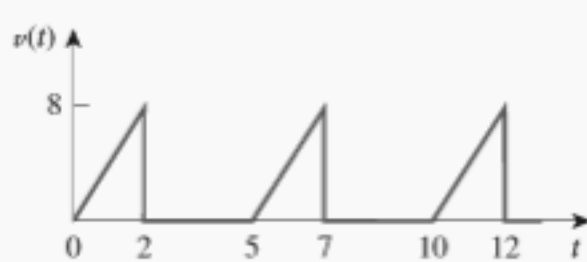


- 0.8 W
- 1.7 W
- 3.4 W
- 6.8 W

No, the answer is incorrect. Score: 0

Accepted Answers: 3.4 W

3) Find the average power absorbed by a  $2\Omega$  resistor, when the voltage waveform shown in the below figure is applied across it. 2 points

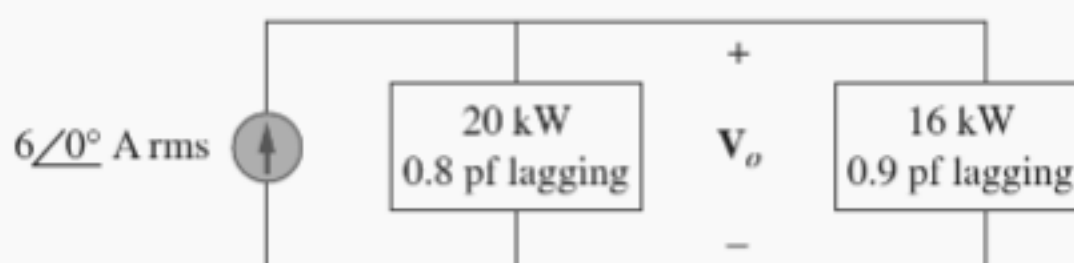


- 4.2 W
- 2.1 W
- 1 W
- 0.5 W

No, the answer is incorrect. Score: 0

Accepted Answers: 4.2 W

4) For the circuit shown below, find the input power factor. 2 points

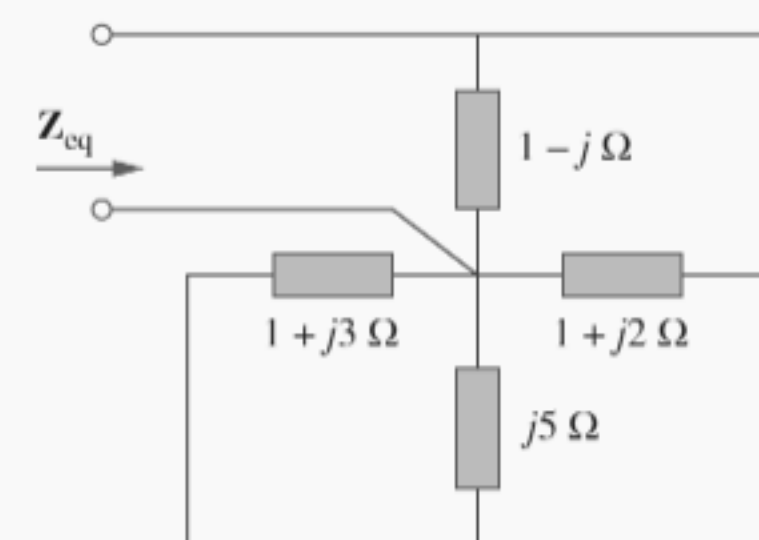


- 0.42 lead
- 0.42 lag
- 0.84 lead
- 0.84 lag

No, the answer is incorrect. Score: 0

Accepted Answers: 0.84 lag

5) Find  $Z_{eq}$  in the circuit shown below. 1 point

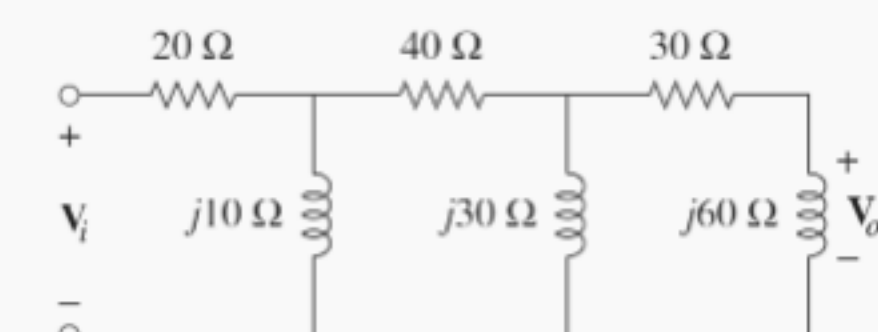


- 1+j0.5
- 1+j1
- 0.5+j0.5
- 0.5+j1

No, the answer is incorrect. Score: 0

Accepted Answers: 1+j0.5

6) For the circuit shown in the figure determine the value of  $V_0$  if  $V_i$  is 120 V. 1 point



- 9.2 V
- 4.6 V
- 18.4 V
- 23 V

No, the answer is incorrect. Score: 0

Accepted Answers: 18.4 V