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Courses » Basic Electrical Circuits Announcements Course Ask a Question Progress Mentor FAQ

## Unit 8 - Week 6: More circuit theorems; Two port parameters

### Course outline

How to access the portal

Pre-requisite Assignment

Week 1: Preliminaries; Current and voltage; Electrical elements and circuits; Kirchhoff's laws; Basic elements; Linearity

Week 2: Elements in series and parallel; Controlled sources

Week 3: Power and energy in electrical elements; Circuit analysis methods

Week 4: Nodal analysis

Week 5 : Mesh analysis; Circuit theorems

Week 6: More circuit theorems; Two port parameters

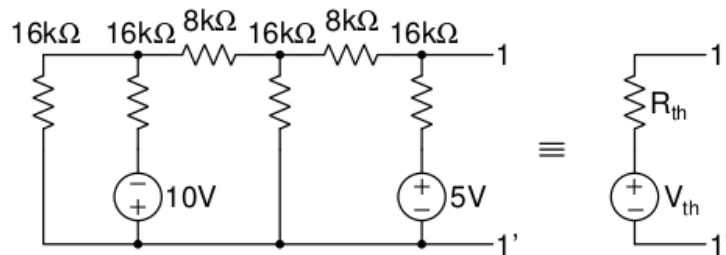
- Extensions to Superposition and Substitution theorem

### Assignment 6

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

**Due on 2018-09-12, 23:59 IST.**

1)



Determine the voltage  $V_{th}$  in the circuit above.

(The answer must be in volts (V). Round off fractional answers to two decimal places.)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Numeric) 1.25

1 point

2)

Determine the resistance  $R_{th}$  in the circuit above.

(The answer must be in kilohms (kΩ). Round off fractional answers to one decimal place.)

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- Worked out example: Norton's theorem
- Maximum power transfer theorem
- Preliminaries
- Two port parameters
- y parameters
- y parameters: Examples
- Quiz : Assignment 6
- Week 6 - Feedback: Basic Electrical Circuits

**Week 7: Two port parameters continued; Reciprocity in resistive networks**

**Week 8: Opamp and negative feedback; Example circuits and additional topics**

**Week 9 :First Order Circuits**

**Week 10 : First order circuits with time-varying inputs**

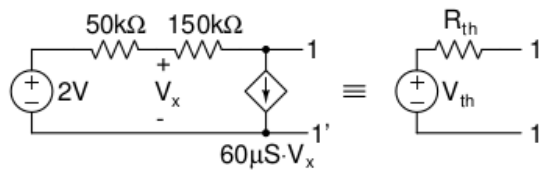
**Week 11: Second order system response**

**Week 12: Direct calculation of steady state response from equivalent components**

**Video Download**

Devel

3)



Determine the voltage  $V_{th}$  in the circuit above.

(The answer must be in volts (V). Round off fractional answers to one decimal place.)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Numeric) -4

1 point

4)

A positive resistance  $R_L$  is connected to the circuit above at 1-1'. What should be the value of  $R_L$  such that the maximum possible power is dissipated in it?

(The answer must be in kilohms (kΩ). Round off fractional answers to one decimal place.)

No, the answer is incorrect.

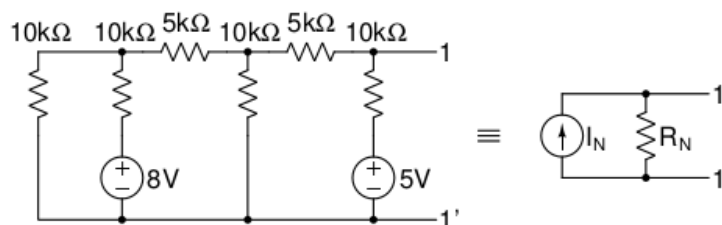
Score: 0

Accepted Answers:

(Type: Numeric) 50

1 point

5)



Determine the current  $I_N$  in the circuit above.

(The answer must be in milliamperes (mA). Round off fractional answers to one decimal place.)

1 point

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Numeric) 0.7

1 point

6)

Determine the Norton equivalent resistance  $R_N$  in the circuit above.

(The answer must be in kilohms ( $k\Omega$ ). Round off fractional answers to one decimal place.)

No, the answer is incorrect.

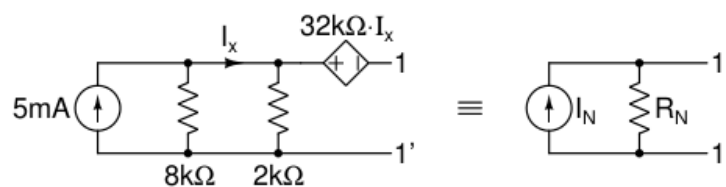
Score: 0

Accepted Answers:

(Type: Numeric) 5

1 point

7)



Determine the current  $I_N$  in the circuit above.

(The answer must be in milliamperes (mA). Round off fractional answers to one decimal place.)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Numeric) -15

1 point

8)

A positive resistance  $R_L$  is connected to the circuit above at 1-1'. What should be the value of  $R_L$  such that the maximum possible power is dissipated in it?

(The answer must be in kilohms ( $k\Omega$ ). Round off fractional answers to one decimal place.)

No, the answer is incorrect.

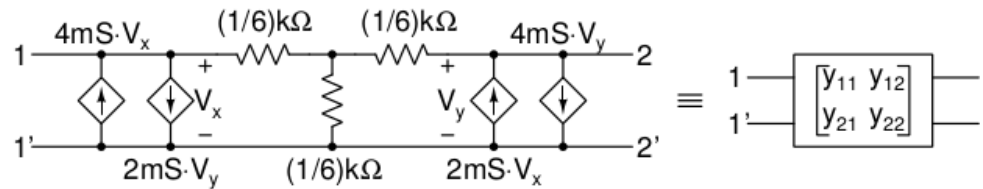
Score: 0

Accepted Answers:

(Type: Numeric) 8

1 point

9)



Determine the y-parameters of the circuit above.

Enter the y-parameter matrix in the space provided below, one row on each line. e.g. if the y-parameter matrix is as shown below,

$$[Y] = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

you should enter

1 2

3 4

In the matrix entry,

Do not have any space at the start of the line

Have exactly one space between entries on each row

Do not have any space after the last entry in each row

Do not have any trailing zeros, i.e., do not write 5.5 as 5.50 or 5 as 5.0

(The y-parameter matrix entries should be in **millisiemens (mS)**. Round off fractional answers to one decimal place.)

Hint

No, the answer is incorrect.

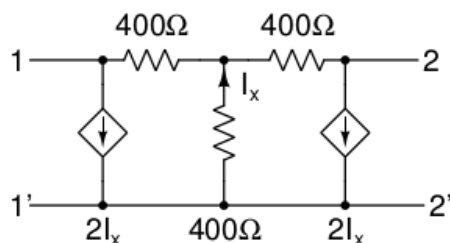
Score: 0

Accepted Answers:

(Type: String) 0 0;-4 8

1 point

10)



Determine the  $y$ -parameters of the circuit above.

Enter the  $y$ -parameter matrix in the space provided below, one row on each line. e.g. if the  $y$ -parameter matrix is as shown below,

$$[Y] = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$$

you should enter

1 2

3 4

In the matrix entry,

Do not have any space at the start of the line

Have exactly one space between entries on each row

Do not have any space after the last entry in each row

Do not have any trailing zeros, i.e., do not write 5.5 as 5.50 or 5 as 5.0

(The  $y$ -parameter matrix entries should be in **millisiemens (mS)**. Round off fractional answers to one decimal place.)

Hint

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: String) 0 -2.5;-2.5 0

1 point

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End

