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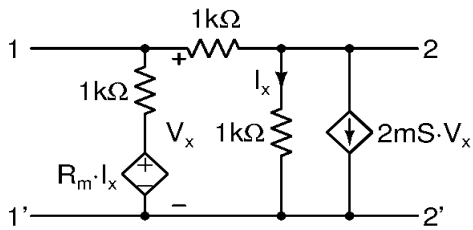
Unit 9 - Week 7: Two port parameters continued; Reciprocity in resistive networks

Assignment 7

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

Due on 2020-11-04, 23:59 IST.

1)



The two-port network in the figure above is reciprocal. Determine R_m.

(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: Range) -2.2,-1.8

1 point

2)

With R_m chosen such that the two-port network in the figure above is reciprocal, determine the h-parameters of the circuit above.

$$[h] = \begin{bmatrix} h_{11} & h_{12} \\ h_{21} & h_{22} \end{bmatrix}$$

where,
h_{11} is in **kilohms**$(k\Omega)$, h_{22} is in **millisiemens**(mS), and h_{12}, h_{21} are scalars.

e.g If you get 1st row and 1st column of [h] as $-1\,k\Omega$, then $h_{11} = -1$.

The answer is the value of the expression given below:

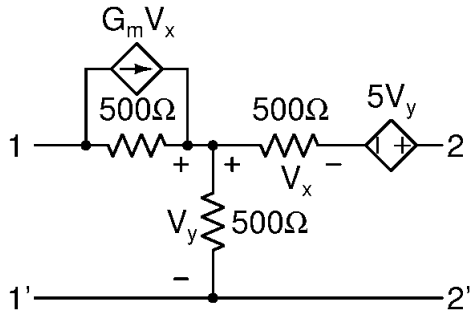
$$(h_{11} \times h_{22}) + (h_{12} \times h_{21})$$

(Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.4,0.6

1 point

3)



The two-port network in the figure above is reciprocal. Determine G_m.

(The answer must be in **millisiemens (mS)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 9.8,10.2

1 point

4)

With G_m chosen such that the two-port network in the figure above is reciprocal, determine the g-parameters of the circuit above.

$$[g] = \begin{bmatrix} g_{11} & g_{12} \\ g_{21} & g_{22} \end{bmatrix}$$

where,

g_{11} is in **millisiemens**(mS), g_{22} is in **kilohms**$(k\Omega)$, and g_{12}, g_{21} are scalars.

e.g If you get 1st row and 1st column of [g] as $-1\,mS$, then $g_{11} = -1$.

The answer is the value of the expression given below:

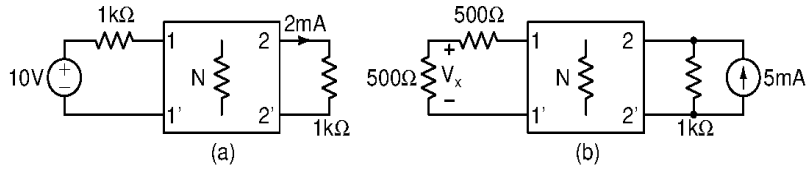
$$(g_{11} \times g_{22}) + (g_{12} \times g_{21})$$

(Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) -14.6,-14.4

1 point

5)



The network N in the figure above consists of only resistors. Given (a), determine V_x in (b).

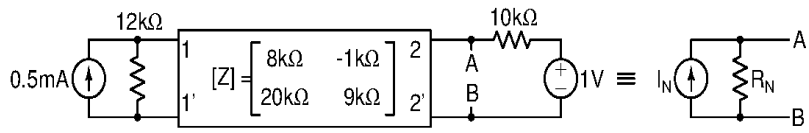
(The answer must be in **volts (V)**. Round off fractional answers to two decimal places.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 0.4,0.6

1 point

6)



Determine the Norton 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: Range) 0.6,0.8

1 point

7) Determine the Norton resistance R_N in the circuit above.

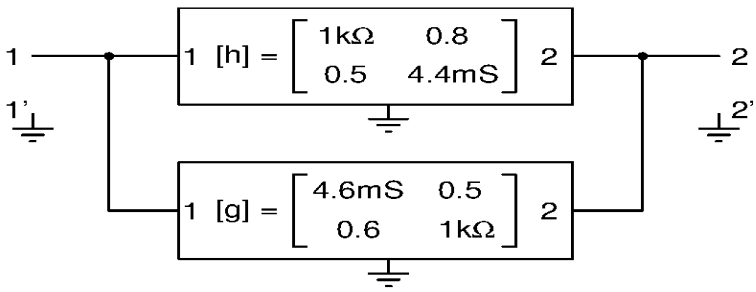
(The answer must be in **kilohms (kΩ)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 4.8,5.2

1 point

8)



In the above circuit, two two-port networks are combined to form a single two-port network. Determine the y-parameters of the composite two-port.

$$[y] = \begin{bmatrix} y_{11} & y_{12} \\ y_{21} & y_{22} \end{bmatrix}$$

where,
y_{ij}'s are the numerical values in **millisiemens**(mS).

e.g If you get 1st row and 1st column of [y] as $-1\,mS$, then $y_{11} = -1$.

The answer is the value of the expression given below:

$$y_{11} + y_{12} + (y_{21} \times y_{22})$$

(Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 4.4,4.6

1 point