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[NPTEL \(https://swayam.gov.in/explorer?ncCode=NPTEL\)](https://swayam.gov.in/explorer?ncCode=NPTEL) » Basic Electrical Circuits (course)

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Unit 4 - Week 2: Elements in series and parallel; Controlled sources

Course outline

How does an NPTEL online course work?

Week 0

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

Week 2: Elements in series and parallel; Controlled sources

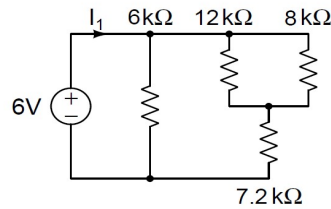
- Series connection-Voltage sources in series (unit? unit=24&lesson=42)
- Series connection of R, L, C, current source (unit? unit=24&lesson=43)
- Elements in parallel (unit? unit=24&lesson=44)
- Current source in series with an element; Voltage source in parallel with an element (unit?unit=24&lesson=54)
- Extreme cases: Open and short circuits (unit? unit=24&lesson=45)
- Summary (unit? unit=24&lesson=48)
- Voltage controlled voltage source(VCVS) (unit? unit=24&lesson=46)
- Voltage controlled current source(VCCS) (unit? unit=24&lesson=47)
- Current controlled voltage source(CCVS) (unit? unit=24&lesson=49)
- Current controlled current source(CCCS) (unit? unit=24&lesson=50)
- Realizing a resistance using a VCCS or CCCS (unit? unit=24&lesson=51)
- Scaling an element's value using controlled sources (unit?unit=24&lesson=52)
- Example calculation (unit? unit=24&lesson=53)
- Week 2 Lecture Material (unit?unit=24&lesson=183)

Assignment 2

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

Due on 2020-09-30, 23:59 IST.

- 1) Determine the current I_1 in the figure below.



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

No, the answer is incorrect.

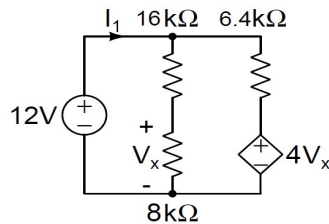
Score: 0

Accepted Answers:

(Type: Range) 1.4,1.6

1 point

- 2) Determine the current I_1 in the figure below.



(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) -0.15,-0.1

1 point

- Basic Electrical Circuits :
Week 2 Feedback Form
(unit?unit=24&lesson=195)
- Quiz : Assignment 2
(assessment?name=206)
- Assignment 2 solutions (unit?
unit=24&lesson=211)

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

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

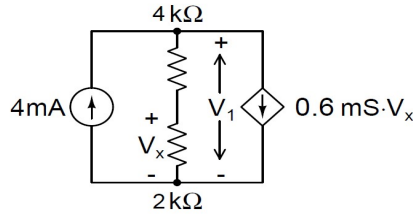
Week 11: Second order system response

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

Text Transcripts

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3) Determine the voltage V_1 in the figure below.



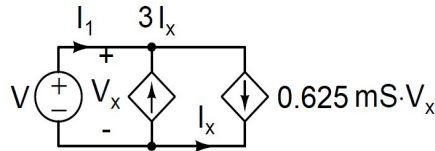
(The answer must be in **volts (V)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 10.8,11.0

1 point

4) Determine the current I_1 in the figure below.



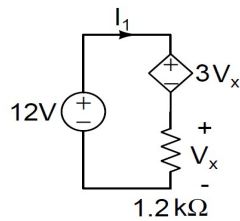
(The answer must be in **milliamperes (mA)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 4.9,5.1

1 point

5) Determine the current I_1 in the figure below.



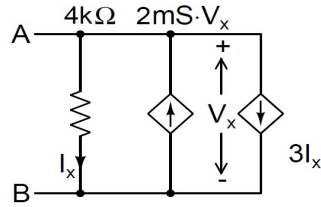
(The answer must be in **milliamperes (mA)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 2.4,2.6

1 point

6) In the figure below, determine the equivalent resistance between A and B.

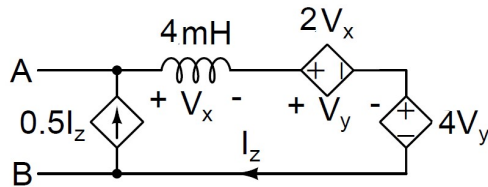


(The answer must be in **kilohms (kΩ)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) -1.1,-0.9

1 point

7) In the figure below, determine the equivalent inductance between A and B.

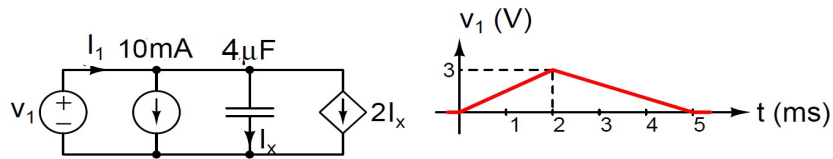


(The answer must be in **millihenries (mH)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 87,89

1 point

8) In the figure below, determine the current I_1 at $t = 4$ ms. (The waveform consists of straight line segments)

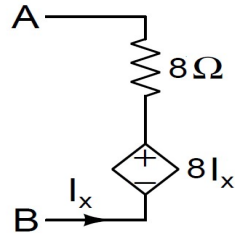


(The answer must be in **milliamperes (mA)**. Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) -2.1,-1.9

1 point

- 9) In the figure below, determine the equivalent resistance between A and B.



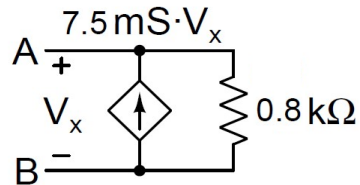
(The answer must be in **ohms** (Ω). Round off fractional answers to one decimal place.)

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 0

1 point

- 10) In the figure below, determine the equivalent resistance between A and B.



(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: Range) -0.20, -0.15

1 point