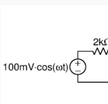
Unit 3 - Week 1 - Obtaining power gain and need for nonlinearity

Assignment 1

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

Due on 2020-02-12, 23:59 IST.

1)



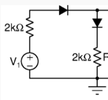
In the figure above, determine the amplitude of the sinusoidal component of V_o when $I_0 = 2.7$ mA.

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

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.30,0.32

1 point

2)



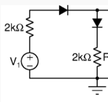
In the figure above, determine the power dissipated in R_x when $V_1 = 13.4$ V, $V_2 = 18$ V.

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

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 18

1 point

3)



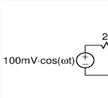
In the figure above, determine the power dissipated in R_x when $V_1 = 19.4$ V, $V_2 = 6$ V.

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

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 32

1 point

4)



In the figure above, determine the amplitude of the sinusoidal component of V_o when $I_0 = -2.7$ mA.

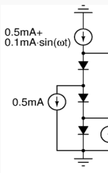
(To think about: Possible application of a circuit such as the above).

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

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 25

1 point

5)



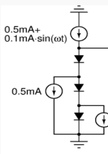
Determine the amplitude V_p of the sinusoidal voltage across the string of diodes.

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

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

0 points

6)



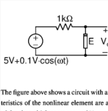
Determine the dc voltage V_0 across the string of diodes.

(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) 17.5,18.2

0 points

7)



The figure above shows a circuit with a nonlinear element E. The I-V characteristics of the nonlinear element are also shown. Determine the amplitude of the sinusoidal component of V_o.

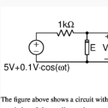
(To think about: How does it compare to the input? What is the function of the circuit?)

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

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 150

1 point

8)



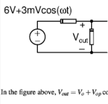
The figure above shows a circuit with a nonlinear element E. The I-V characteristics of the nonlinear element are also shown. Determine the power dissipated in the nonlinear element at the operating point.

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

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 6.25

1 point

9)



In the figure above, $V_{out} = V_o + V_{op}\cos(\omega t)$. Determine V_o and V_{op}.

Output operating point voltage V_o

(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) 3

1 point

10) Peak of the output sinusoid V_{op}
The answer must be in millivolt **(mV)**. Round off fractional answers to one decimal places

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 1.5

1 point