

Unit 2 - Week 0

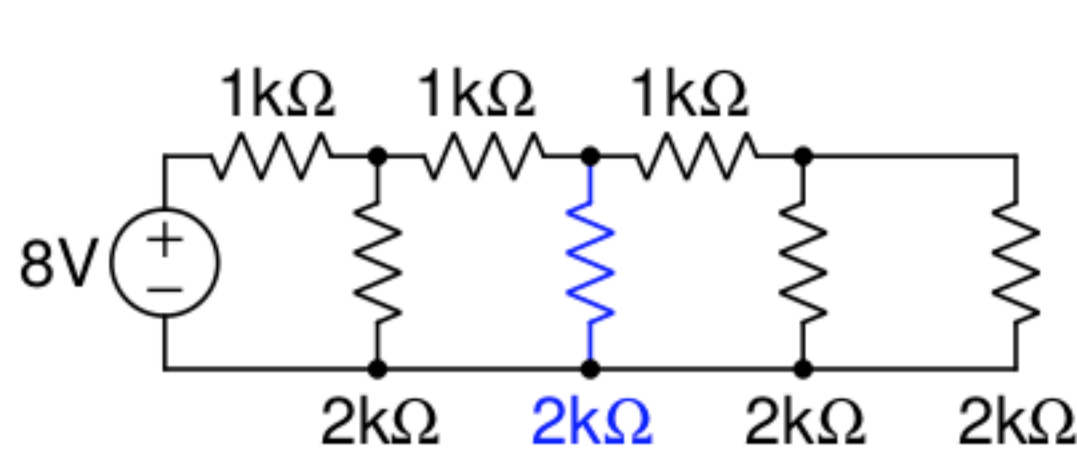
Course outline
How does an NPTEL online course work?
Week 0
○ Quiz : Assignment 0
Week 1 - Obtaining power gain and need for nonlinearity
Week 2 - Nonlinear two ports; MOS transistor; Common source amplifier
Week 3 - Common source amplifier using the MOS transistor
Week 4 - Biasing a MOS transistor at a fixed drain current; CS amplifier using drain feedback bias and current mirror bias
Week 5 - CS amplifier using source feedback bias; Controlled sources using a MOS transistor-VCVS
Week 6 - Controlled sources continued-VCCS, CCCS, CCVS
Week 7 - Opamp controlled sources; Virtual short; Swing limits; Summary of amplifiers
Week 8 - pMOS transistor; Converting pMOS circuits to nMOS
Week 9 - Common source amplifier with active load; CMOS inverter
Week 10 - Differential pair with current mirror load; Single-stage opamp
Week 11 - Two-stage opamp; Opamp characteristics
Week 12 - Bipolar transistors
Lecture Notes
Text Transcripts
DOWNLOAD VIDEOS
Books

Assignment 0

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

Due on 2020-01-27, 23:59 IST.

1)



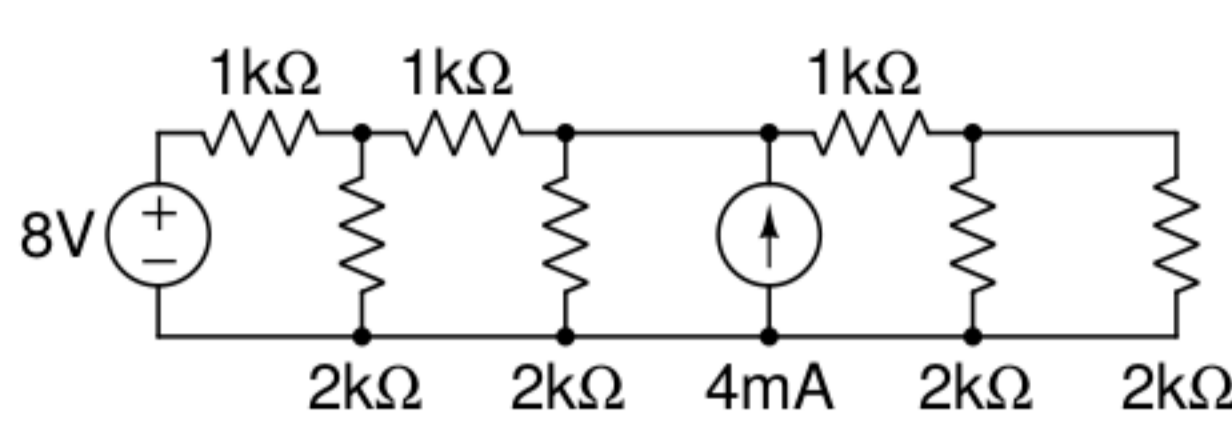
Determine the power dissipated in the resistor shown in blue.

(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) 2

1 point

2)



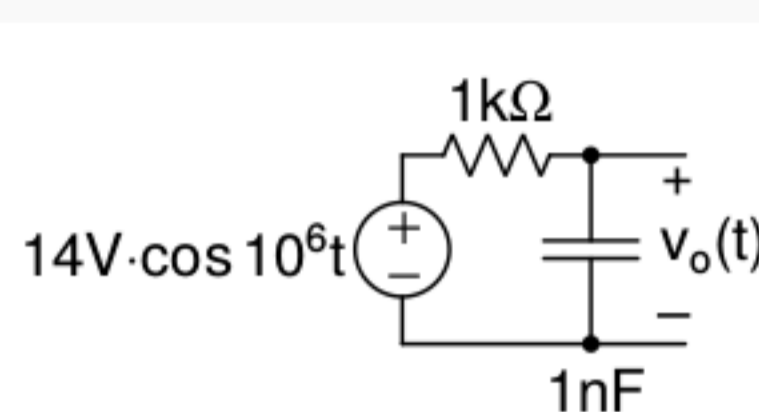
Determine the power delivered by the 8 V voltage source.

(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) 24

1 point

Following Circuit diagram for Question no. 3 and 4



3) In the figure above, $v_o(t) = V_p \cos(\omega t + \phi)$. Determine the output amplitude V_p .

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

No, the answer is incorrect. Score: 0 Accepted Answers: (Type: Numeric) 9.9

1 point

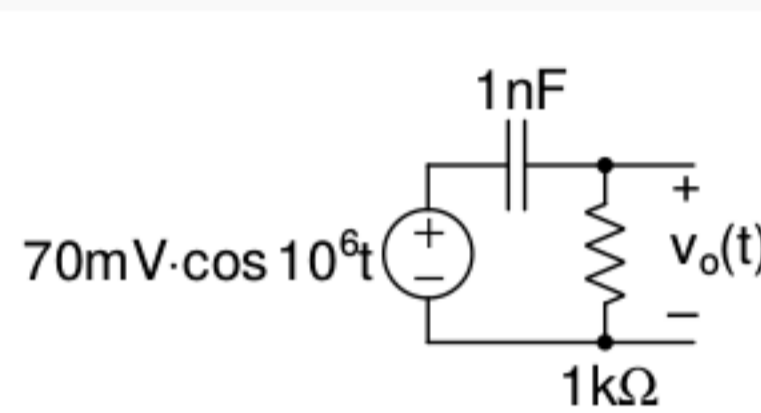
4) Determine the phase ϕ .

(The answer must be in degrees in the range $[-180^\circ, 180^\circ]$. Round off fractional answers to one decimal place.)

No, the answer is incorrect. Score: 0 Accepted Answers: (Type: Numeric) -45

1 point

Following Circuit diagram for Question no. 5 and 6



5) In the figure above, $v_o(t) = V_p \cos(\omega t + \phi)$. Determine the output amplitude V_p .

(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) 49.5

1 point

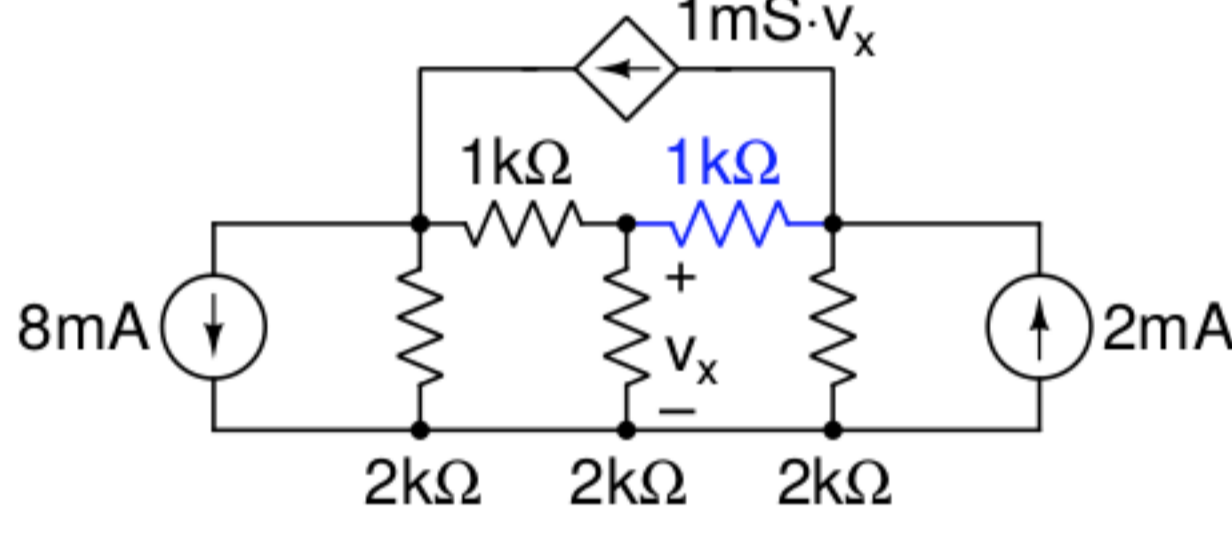
6) Determine the phase ϕ .

(The answer must be in degrees in the range $[-180^\circ, 180^\circ]$. Round off fractional answers to one decimal place.)

No, the answer is incorrect. Score: 0 Accepted Answers: (Type: Numeric) 45

1 point

7)



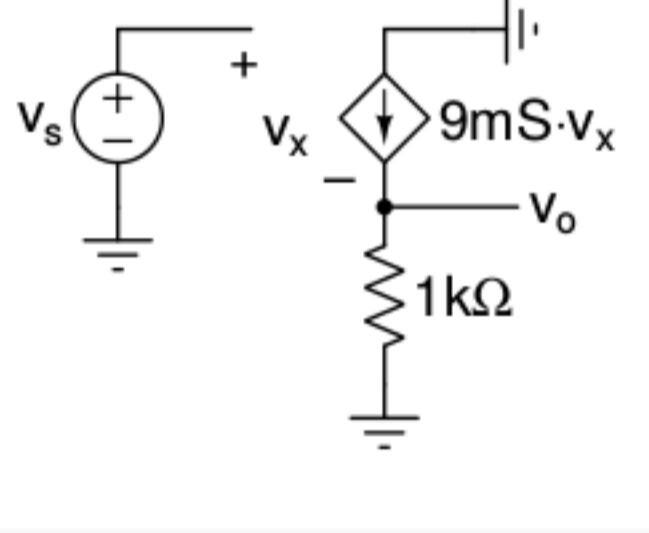
Determine the power dissipated in the resistor shown in blue.

(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) 22.7

1 point

8)



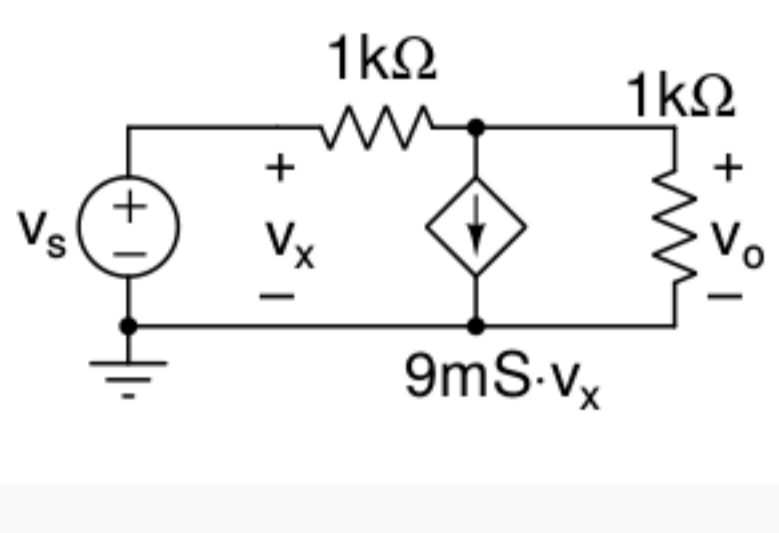
Determine the gain $\frac{v_o}{v_s}$.

(The answer must be the value of $\frac{v_o}{v_s}$. Round off fractional answers to one decimal place.)

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

1 point

9)



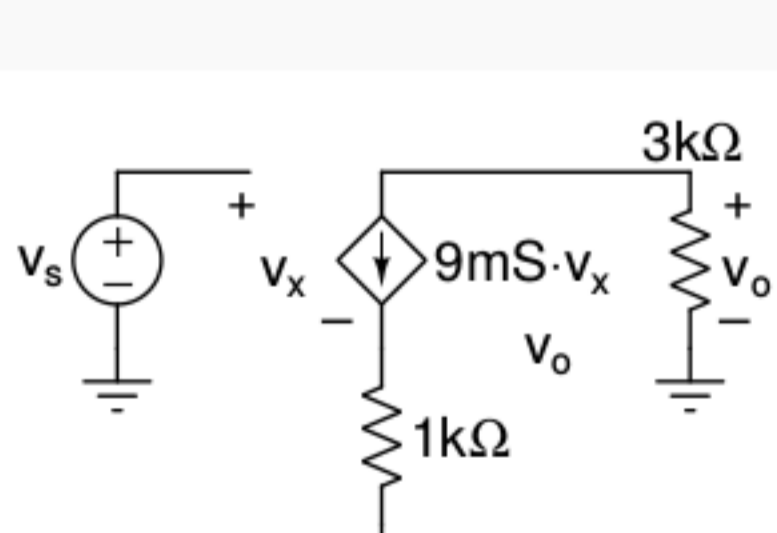
Determine the gain $\frac{v_o}{v_s}$.

(The answer must be the value of $\frac{v_o}{v_s}$. Round off fractional answers to one decimal place.)

No, the answer is incorrect. Score: 0 Accepted Answers: (Type: Numeric) -4

1 point

10)



Determine the gain $\frac{v_o}{v_s}$.

(The answer must be the value of $\frac{v_o}{v_s}$. Round off fractional answers to one decimal place.)

No, the answer is incorrect. Score: 0 Accepted Answers: (Type: Numeric) -2.7

1 point

11)

$$f(x) = \frac{1}{1+2x}$$

The Taylor series of $f(x)$ about the point $x = 0$ is

- $1 - 2x + 2x^2 - 2x^3$
- $1 - 2x + 4x^2 - 8x^3$
- $1 - 2x + 8x^2 - 24x^3$
- $1 - 2x + 4x^2 - 6x^3$

No, the answer is incorrect. Score: 0 Accepted Answers: $1 - 2x + 4x^2 - 8x^3$

1 point

1 point

12)

$$y = x^2$$

$y = 4$ when $x = 2$. When x changes to $x + \Delta x$, y changes to $4 + c\Delta x$. What is c ?

(The answer must be the value of c . Round off fractional answers to one decimal place.)

No, the answer is incorrect. Score: 0 Accepted Answers: (Type: Numeric) 4

1 point