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NPTEL

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Courses » Basic Electrical Circuits

Announcements Course Ask a Question Progress Mentor FAQ

Unit 10 - Week 8: Opamp and negative feedback; Example circuits and additional topics

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

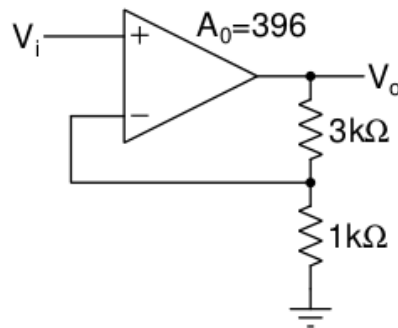
Assignment 8

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

Due on 2018-09-26, 23:59 IST.

1)



Determine the percentage error from the ideal gain in the figure above. Ideal gain refers to V_o/V_i with an ideal opamps. Percentage error is defined as

$$100 (V_o/V_i|_{ideal} - V_o/V_i)$$

(The answer must be the percent error. Round off fractional answers to one decimal place.)

No, the answer is incorrect.

Score: 0

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A project of



In association with



Funded by

port parameters continued;
Reciprocity in resistive networks

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

Feedback amplifier using an opamp

Ideal opamp

Negative feedback around the opamp

Finding opamp signs for negative feedback

Example: Determining opamp sign for negative feedback

Analysis of circuits with opamps

Inverting amplifier

Summing amplifier

Instrumentation amplifier

Negative resistance and Miller effect

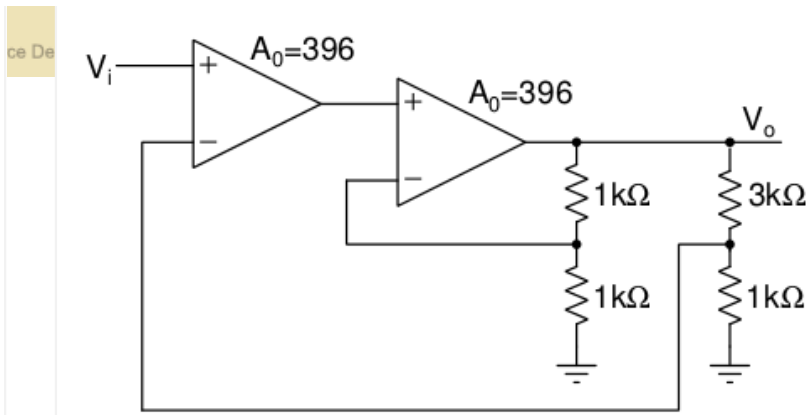
Finding opamp signs for negative feedback-circuits with multiple opamps

Opamp supply voltages and saturation

KCL with an opamp and supply currents

Quiz : Assignment 8

Week 8 Feedback : Basic Electrical Circuits



Determine the percentage error from the ideal gain in the figure above. Ideal gain refers to V_o/V_i with an ideal opamps. Percentage error is defined as

$$100 (V_o/V_i|_{ideal} - V_o/V_i)$$

(The answer must be the percent error. Round off fractional answers to one decimal place.)

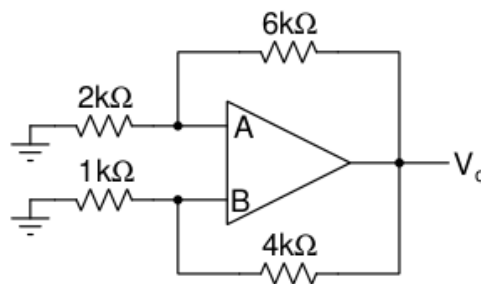
No, the answer is incorrect.

Score: 0

Accepted Answers:
(Type: Range) 2.0,2.1

1 point

3)



Determine the negative terminal of the opamp in the figure above so that it is in negative feedback.

No, the answer is incorrect.

Score: 0

Accepted Answers:
(Type: String) A

1 point

Week 9 :First Order Circuits

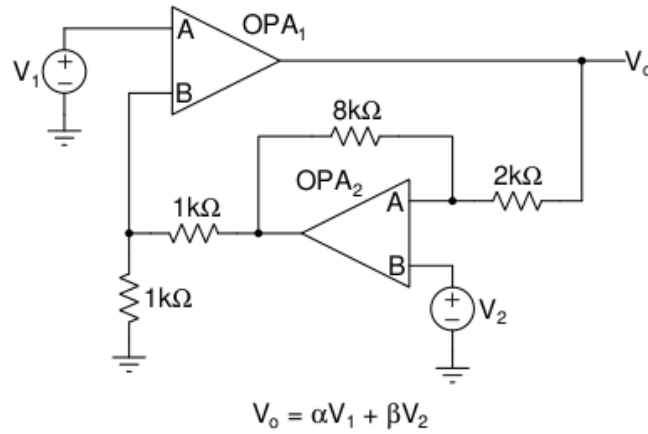
Week 10 : First order circuits with time-varying inputs

Week 11: Second order system response

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

Video Download

4)



In the circuit above, determine the coefficients α and β in the expression for the output V_o .

(The answer must be the coefficient values. Round off fractional answers to two decimal places.)

Value of α

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) -0.5

1 point

5)

Value of β

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 1.25

1 point

6)

Determine the negative terminals of the two opamps in the figure above so that they are in negative feedback.

Negative terminal of OPA₁

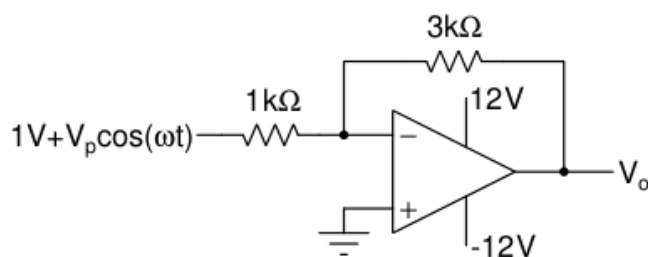
No, the answer is incorrect.

Score: 0**Accepted Answers:***(Type: String) A***1 point**

7)

Negative terminal of OPA₂**No, the answer is incorrect.****Score: 0****Accepted Answers:***(Type: String) A***1 point**

8)

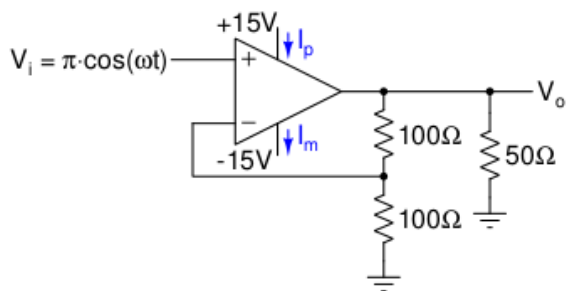


In the figure above, determine the highest amplitude V_p such that the opamp is not saturated.

(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) 3***1 point**

9)



In the circuit above, $I_p = I_m = 3 \text{ mA}$ when $V_i = 0$. Determine the average current drawn from the supplies when $V_i = \pi \cos(\omega t)$.

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

No, the answer is incorrect.

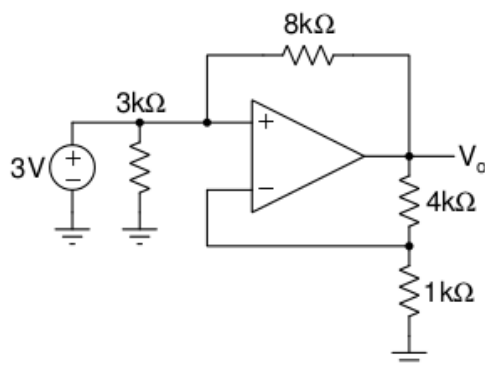
Score: 0

Accepted Answers:

(Type: Numeric) 53

1 point

10



In the circuit above, determine the power *delivered* by the 3 V 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) -1.5

1 point

