

X



(<https://swayam.gov.in>)



(https://swayam.gov.in/nc_details/NPTEL)

reviewer6@nptel.iitm.ac.in

NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » Basic Electrical Circuits (course)

Announcements (announcements) About the Course (preview) Ask a Question (forum) Progress (student/home) Mentor (student/mentor)

Unit 14 - Week 12: Direct calculation of steady state response from equivalent components

Course outline

How does an NPTEL online course work?

Week 0

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 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

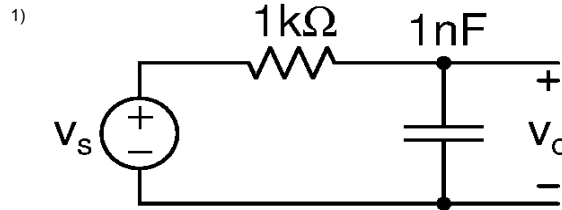
Week 12: Direct calculation of steady state response from equivalent components

- Steady state response calculation and Phasors (unit?unit=27&lesson=168)
- Phasors cont'd (unit?unit=27&lesson=169)
- Magnitude and Phase plots (unit?unit=27&lesson=170)

Assignment 12

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

Due on 2020-12-09, 23:59 IST.



In the circuit above, $v_s(t) = 6 \cos(2\sqrt{2} \cdot 10^6 t)$ V. In steady state $v_o = V_p \cos(\omega t + \phi)$. Determine V_p and ϕ .

Value of V_p :

(The answer must be in volts (V). Round off fractional answers to 1 decimal place.)

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

1 point

2) Value of ϕ :

(The answer must be in degrees ($^\circ$). Round off fractional answers to 1 decimal place.)

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) -71,-70

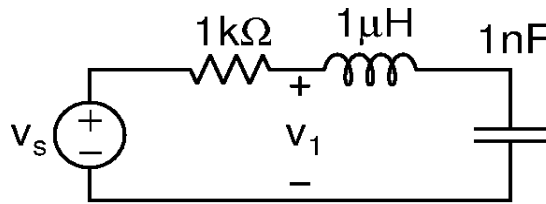
1 point

- Magnitude and phase plots of a second order system (unit?unit=27&lesson=171)
- Maximum power transfer and Conjugate matching (unit?unit=27&lesson=172)
- Basic Electrical Circuits : Week 12 Feedback Form (unit?unit=27&lesson=205)
- Week 12 Lecture materials (unit?unit=27&lesson=230)
- Quiz : Assignment 12 (assessment?name=233)
- Assignment 12 solutions (unit?unit=27&lesson=236)

Text Transcripts

Download Videos

3)



In the circuit above, $v_s(t) = 5 \sin(10^6 t)$ V. In steady state $v_1 = V_p \cos(\omega t + \phi)$. Determine V_p and ϕ .

Value of V_p :

(The answer must be in volts (V). Round off fractional answers to 1 decimal place.)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Range) 3.4,3.6

1 point

4) Value of ϕ :

(The answer must be in degrees ($^\circ$). Round off fractional answers to 1 decimal place.)

No, the answer is incorrect.

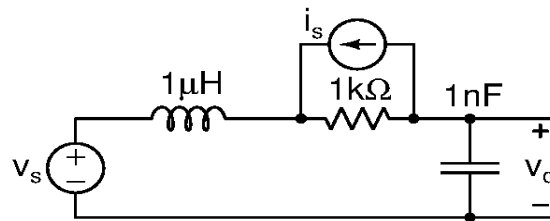
Score: 0

Accepted Answers:

(Type: Range) -136,-134

1 point

5)



In the circuit above, $v_s(t) = 3 \cos(10^6 t)$ V and $i_s(t) = 4 \sin(10^6 t)$ mA. In steady state $v_o = V_p \cos(\omega t + \phi)$. Determine V_p and ϕ .

Value of V_p :

(The answer must be in volts (V). Round off fractional answers to 1 decimal place.)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Range) 3.4,3.6

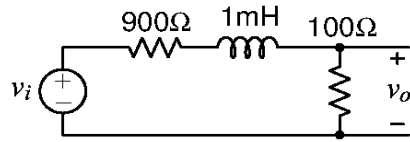
1 point

6) Value of ϕ :

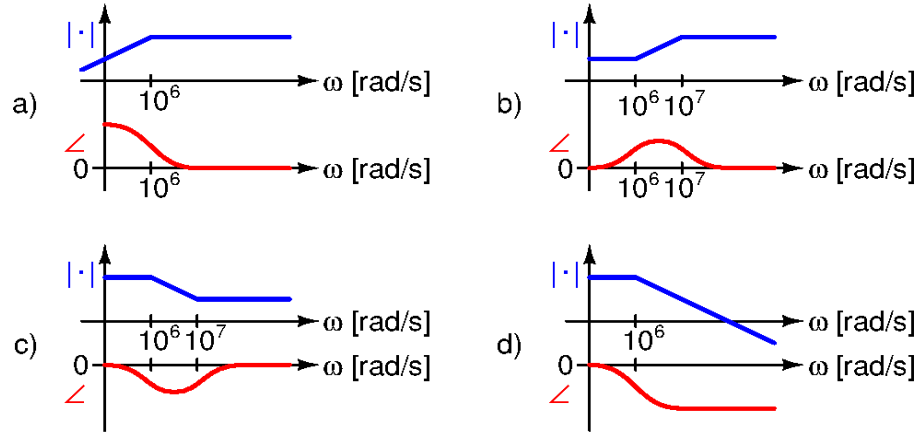
(The answer must be in degrees ($^\circ$). Round off fractional answers to 1 decimal place.)

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 (Type: Range) 7.9,8.2

7)



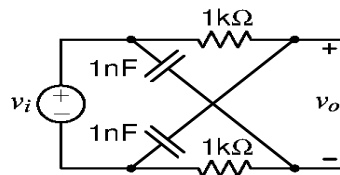
Choose the magnitude/phase plot corresponding to v_o/v_i above.



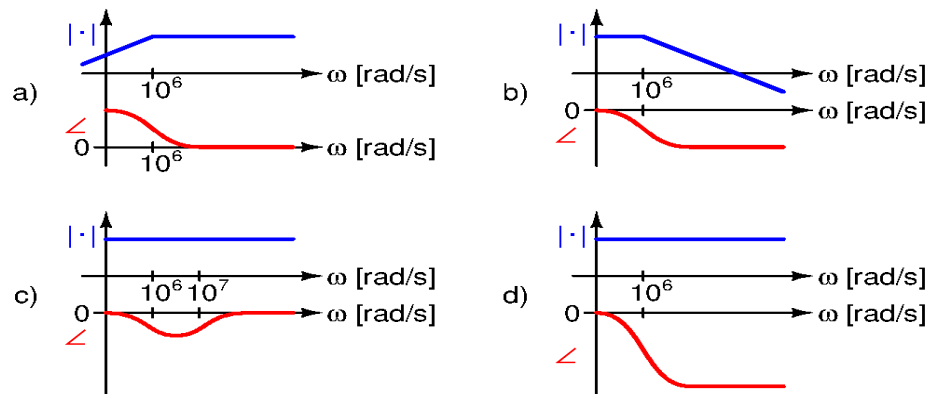
- a
- b
- c
- d

No, the answer is incorrect.
 Score: 0
 Accepted Answers:
 d

8)



Choose the magnitude/phase plot corresponding to v_o/v_i above.



- a
- b
- c
- d

No, the answer is incorrect.
 Score: 0

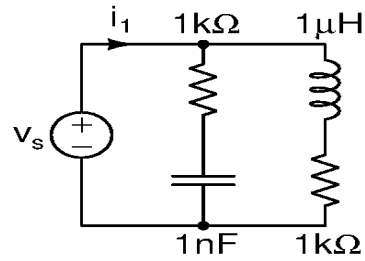
1 point
 1 point

1 point

Accepted Answers:

d

9)



In the circuit above, $v_s(t) = 4 \sin(10^6 t)$ V. In steady state $i_1 = I_p \cos(\omega t + \phi)$. Determine V_p and ϕ .

Value of I_p :

(The answer must be in milliamperes (mA). Round off fractional answers to 1 decimal place.)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Range) 6.2,6.4

1 point

10) Value of ϕ :

(The answer must be in degrees ($^\circ$). Round off fractional answers to 1 decimal place.)

No, the answer is incorrect.

Score: 0

Accepted Answers:

(Type: Range) -71.7,-71.4

1 point