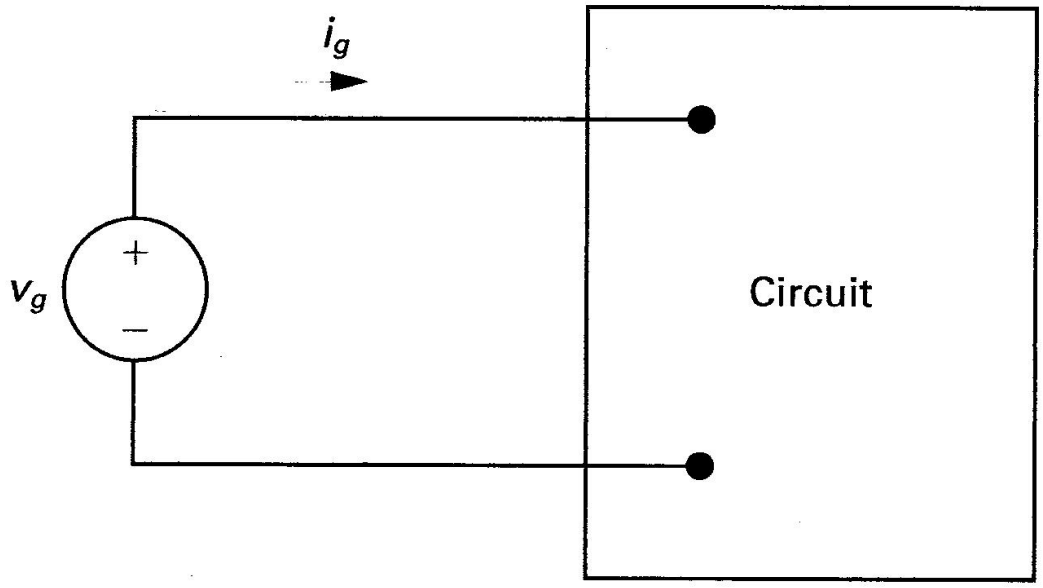
Started on	Tuesday, 15 November 2016, 3:18 PM
State	Finished
Completed on	Tuesday, 15 November 2016, 3:18 PM
Time taken	5 secs
Grade	**90.00** out of 100.00

Question 1

Correct

Mark 10.00 out of 10.00



P9.29_6ed

Given:

$v_g = 150 \cos(8{,}000\,\pi\,t + 20°)$ V

$i_g = 30 \sin(8{,}000\,\pi\,t + 38°)$ A

a) What is the impedance seen by the source?

$Z_{circuit}$ = Mag 5 ✓ with Angle 72 ✓ ° (Degrees) Ω (Ohm)

b) By how many microseconds is the current out of phase with the voltage?

t_{phase} = 50 ✓ µs (micro sec)

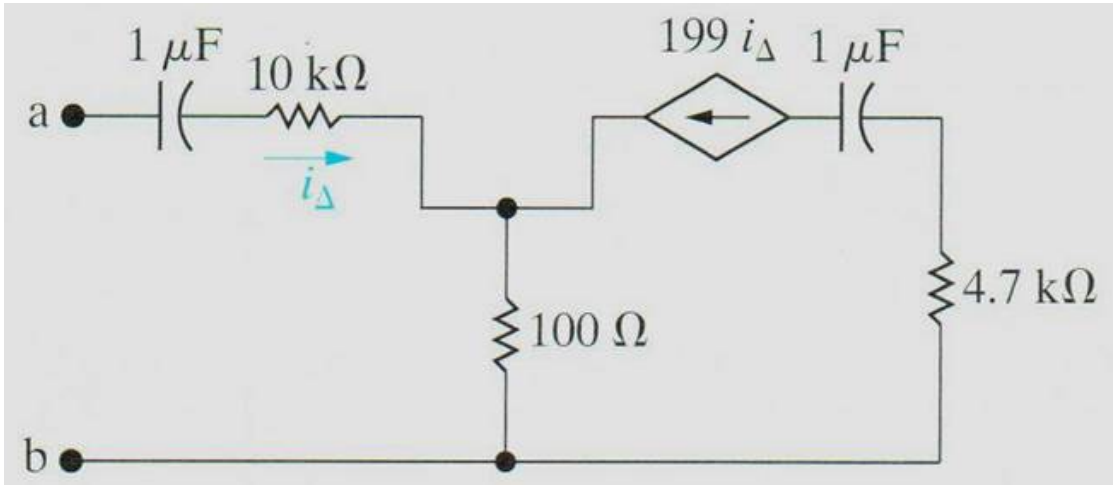
Correct

Marks for this submission: 10.00/10.00.

Question 2

Correct

Mark 10.00 out of 10.00



P9.46_7ed

The frequency of operation is 400 rad/sec.

Find the Thévenin impedance seen looking into the terminals ab of this circuit.

Z_{Th} = 30000 ✓ + j -2500 ✓ Ω (Ohm)

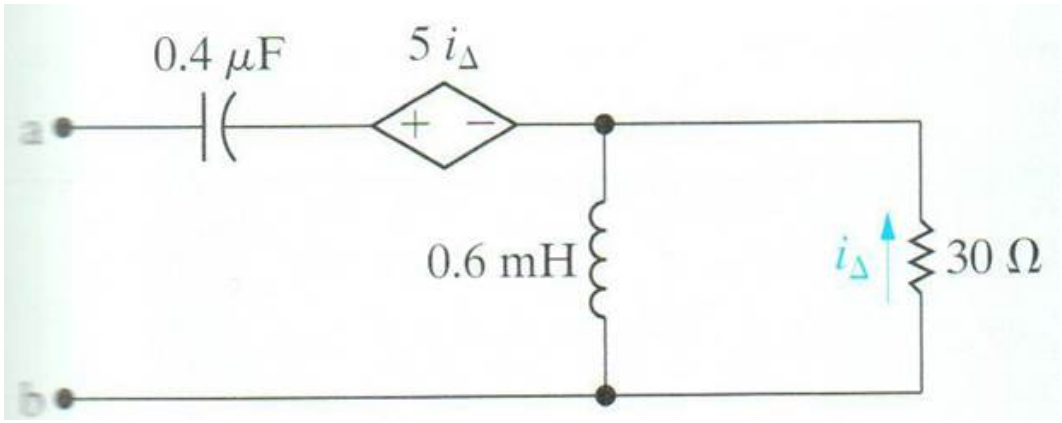
Correct

Marks for this submission: 10.00/10.00.

Question 3

Correct

Mark 10.00 out of 10.00



Find the Thévenin impedance seen looking into the terminals ab of this circuit.

The frequency of operation is 100 krad/sec (kilo rad/sec).

Z_{Th} = 20 ✓ + j -15 ✓ Ω (Ohm)

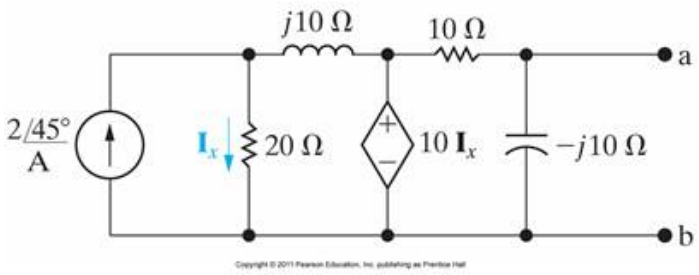
Correct

Marks for this submission: 10.00/10.00.

Question 4

Correct

Mark 10.00 out of 10.00



AP9.11_9ed

Find the Thévenin equivalent with respect to terminals a,b.

V_{Th} = Magnitude 10 ✓ with Angle 45 ✓° (Degrees) Volts

Z_{Th} = Magnitude 7.07 ✓ with Angle -45 ✓° (Degrees) Ω (Ohm)

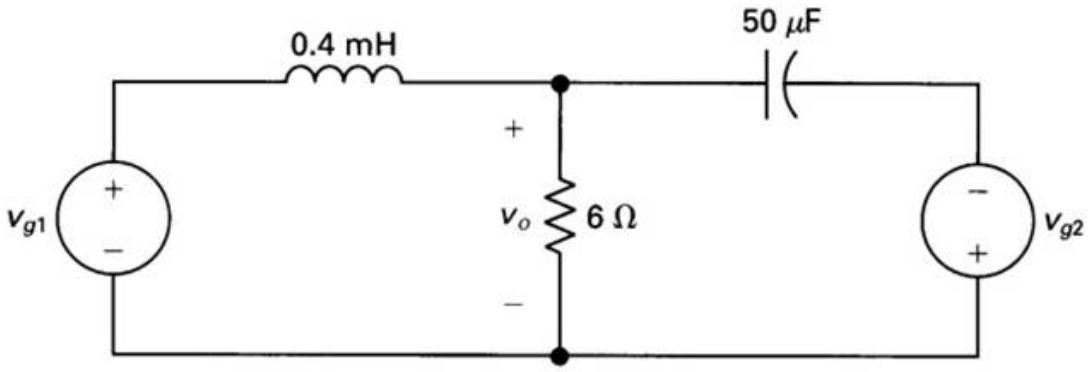
Correct

Marks for this submission: 10.00/10.00.

Question 5

Correct

Mark 10.00 out of 10.00



P9.49_6ed

Given:

v_{g1} = 10 cos(5,000 t + 53.13°) V

v_{g2} = 8 sin(5,000 t) V

Find the steady-state time domain expression for v_0 (t) of this circuit.

v_0 (t)= 12 ✓ cos(5,000t + 0 ✓°) (Degrees) Volts

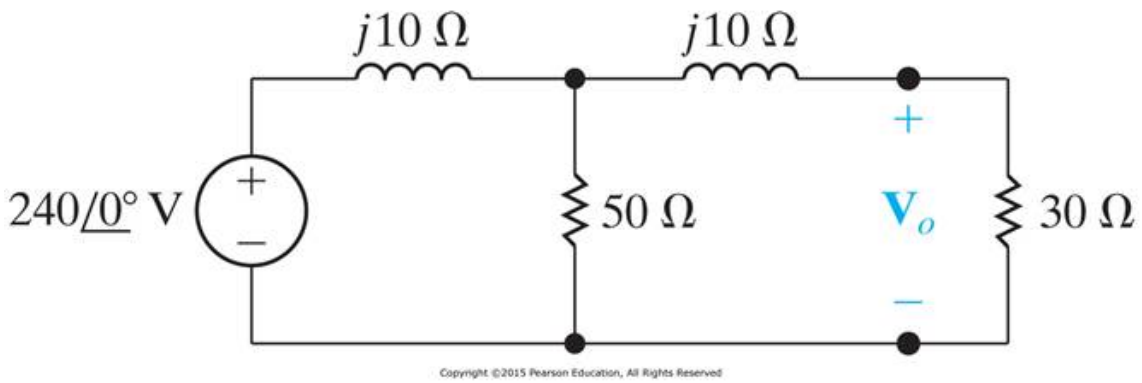
Correct

Marks for this submission: 10.00/10.00.

Question 6

Correct

Mark 10.00 out of 10.00



P9.54_10ed

Use the node-voltage method to find $\mathbf{V_0}$.

$\mathbf{V_0}$ = Magnitude 188.43 ✓ with Angle -42.88 ✓° (Degrees) Volts

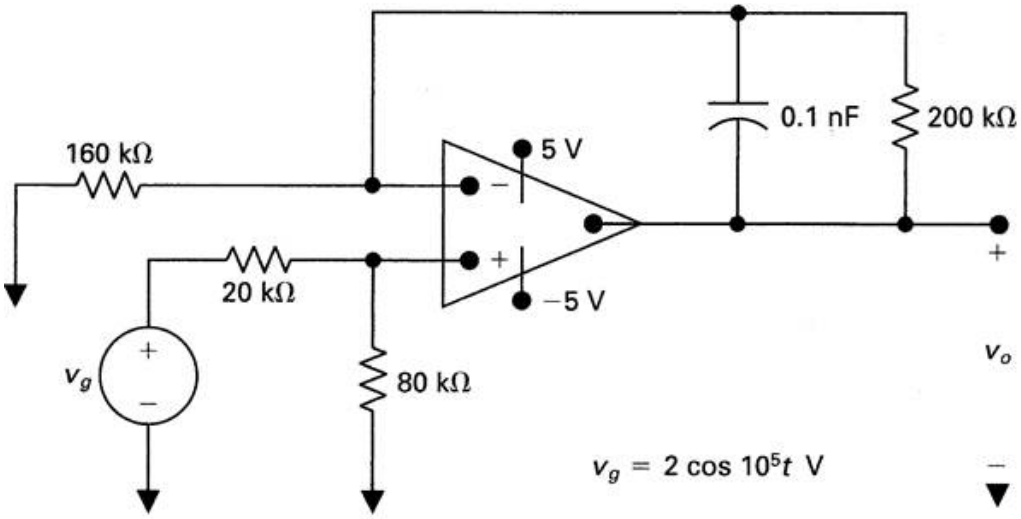
Correct

Marks for this submission: 10.00/10.00.

Question 7

Incorrect

Mark 0.00 out of 10.00



P9.72_6ed

The operational amplifier is ideal.

Given $v_g(t) = 2\cos(100{,}000\ t)$ V

a) Find the steady-state output $v_0(t)$.

$v_0(t)$ = 16 ✗ cos(100,000 t + -15 ✗°) Volts

b) How large can the amplitude of $v_g(t)$ be before the amplifier saturates?

$|\ v_0(t)_{max}\ | \leq$ 5 ✗ Volts (less than or equal to)

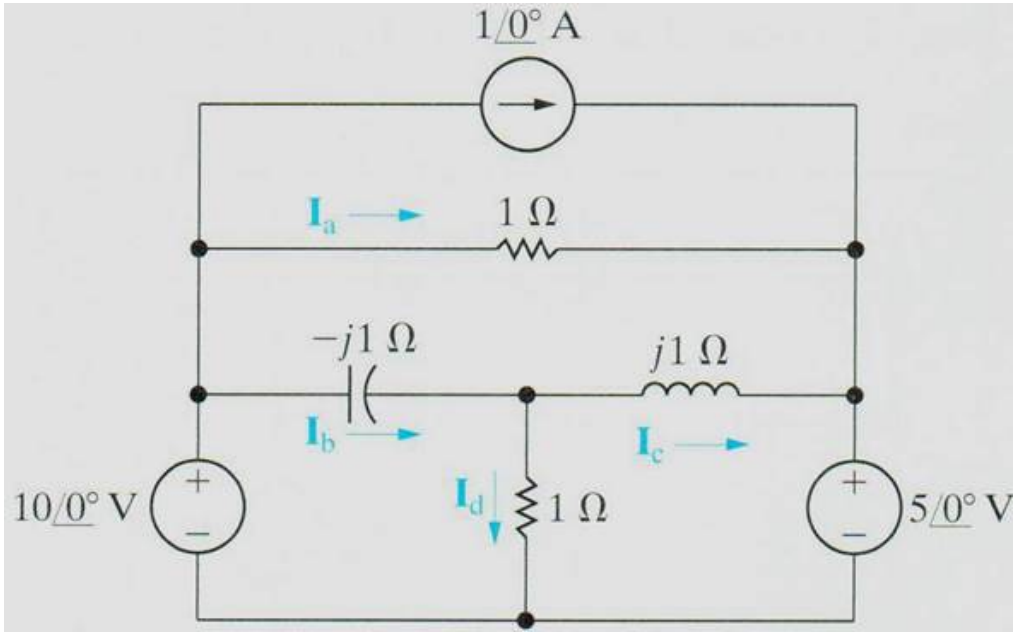
Incorrect

Marks for this submission: 0.00/10.00.

Question 8

Correct

Mark 10.00 out of 10.00



P9.62_7ed

Use the Mesh method and find the following currents:

$\mathbf{I_a}$ = Magnitude 5 ✓ with Angle 0 ✓° (Degrees) Amps

$\mathbf{I_b}$ = Magnitude 11.18 ✓ with Angle 63.43 ✓° (Degrees) Amps

$\mathbf{I_c}$ = Magnitude 7.07 ✓ with Angle 45 ✓° (Degrees) Amps

$\mathbf{I_d}$ = Magnitude 5 ✓ with Angle 90 ✓° (Degrees) Amps

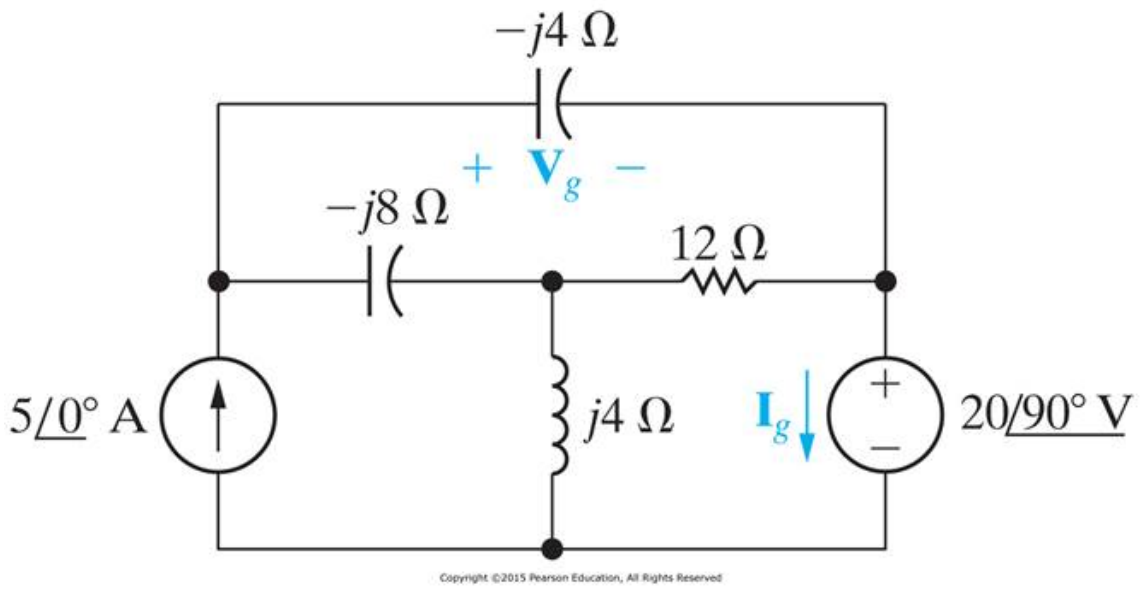
Correct

Marks for this submission: 10.00/10.00.

Question 9

Correct

Mark 10.00 out of 10.00



P9.60_10ed

Use the mesh-current method to find $\mathbf{I_g}$.

$\mathbf{I_g}$ = 4 ✓ + j -2 ✓ A

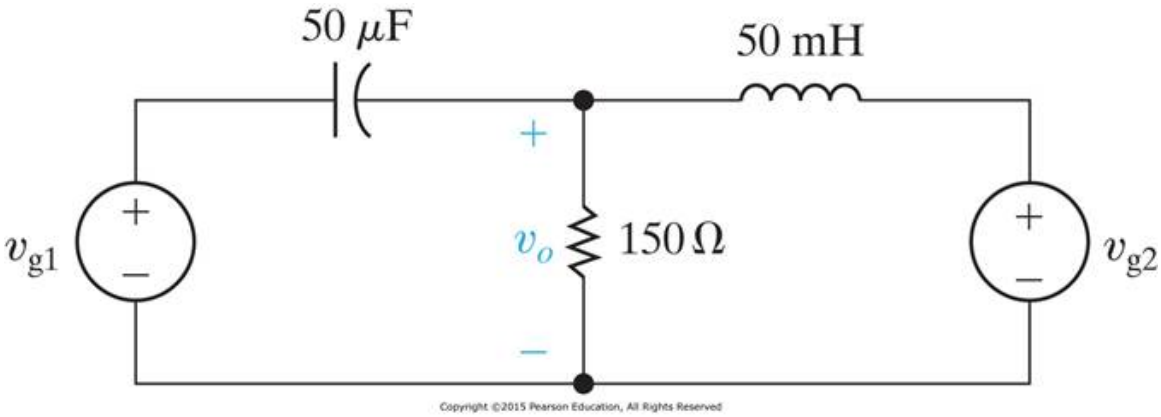
Correct

Marks for this submission: 10.00/10.00.

Question 10

Correct

Mark 10.00 out of 10.00



P9.61_10ed

Given: v_{g1} = 25 sin (400 t + 143.12°) V and v_{g2} = 18.03 cos (400 t + 33.69°) V

Use the mesh-current method to find the steady-state voltage of $v_0(t)$.

$v_0(t)$ = 15 ✓ cos (400 t + 0 ✓ °) (Degrees) V

Correct

Marks for this submission: 10.00/10.00.