Started on	Wednesday, 2 November 2016, 11:55 AM
State	Finished
Completed on	Wednesday, 2 November 2016, 12:55 PM
Time taken	59 mins 42 secs
Grade	**82.50** out of 100.00

Question 1

Partially correct

Mark 7.50 out of 15.00

5 A

12 Ω

20 Ω

40 V

25 Ω

40 Ω

7.5 A

40 Ω

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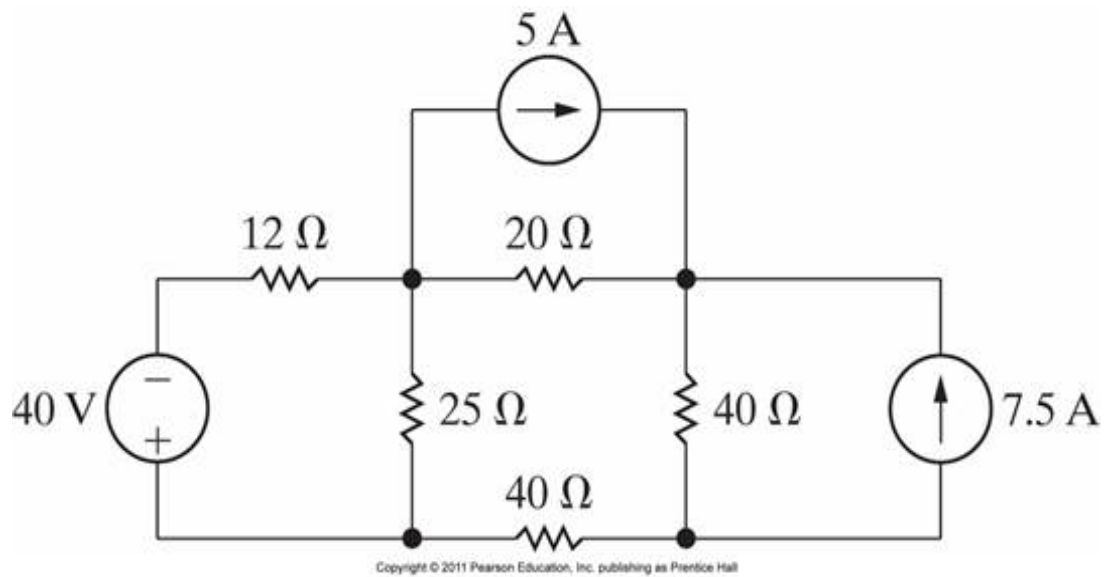
Q1d

a) Find the voltage across the 7.5A current source.

$V_{7.5A}$ = | -122 | ✗ Volts

b) Find the voltage across the 25 Ω (Ohm) resistor.

$V_{25\Omega}$ = | -10 | ✓ Volts

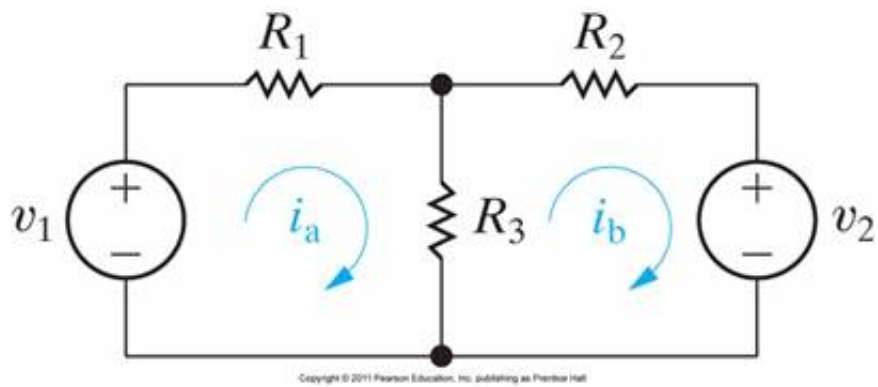**Numeric Answer**

$V_{7.5A}$ = 216V

$V_{25\Omega}$ = -10V

 Partially correct

Marks for this submission: 7.50/15.00.

Q2j

Given:

v_1 = 21 Volts v_2 = 28 Volts

R_1 = 10 Ω (Ohms) R_2 = 40 Ω (Ohms) R_3 = 80 Ω (Ohms)

Find the currents i_a and i_b.

i_a = [63.6] ✓ mA (milli Amp)

i_b = [-190.9] ✓ mA (milli Amp)
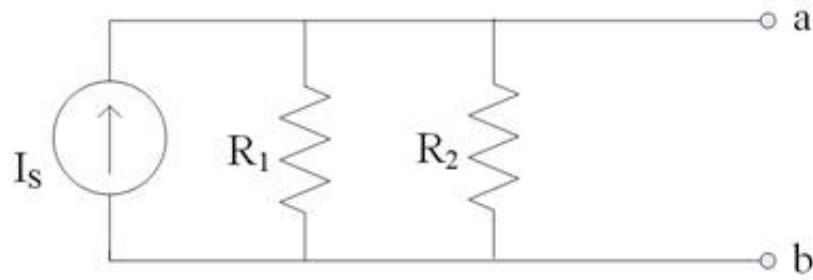
Numeric Answer

i_a = 63.636 mA

i_b = -190.909 mA

Correct

Marks for this submission: 15.00/15.00.

Question 3

Correct

Mark 10.00 out of 10.00

Q3f

Given: I_s = 10 A R_1 = 10 Ω (Ohms) R_2 = 40 Ω (Ohms)

Perform a source transformation and find the voltage transform equivalent.

this circuit.

$V_{transform}$ = [80] ✓ V

$R_{transform}$ = [8] ✓ Ω (Ohm)

Numeric Answer

$V_{transform}$ = 80 V

$R_{transform}$ = 8 Ω (Ohm)

Correct

Marks for this submission: 10.00/10.00.

Q4b

Given:

V_a = 10 Volts I_b = 3 Amps

R_1 = 20 Ω (Ohm) R_2 = 20 Ω (Ohm) R_3 = 10 Ω (Ohm)

a) Find the Thévenin equivalent voltage V_{Th}.

V_{Th} = [35] ✓ Volts

b) Find the Thévenin equivalent resistance R_{Th}.

R_{Th} = [20] ✓ Ω (Ohms)

Numeric Answer

a) V_{Th} = 35.0 Volts

b) R_{Th} = 20.0 Ω (Ohms)

Correct

Marks for this submission: 15.00/15.00.

Question 5

Correct

Mark 15.00 out of 15.00

$10\ \Omega$ $2.5\ \Omega$ a

$80\ V$ $+$ $-$ $30\ \Omega$

b
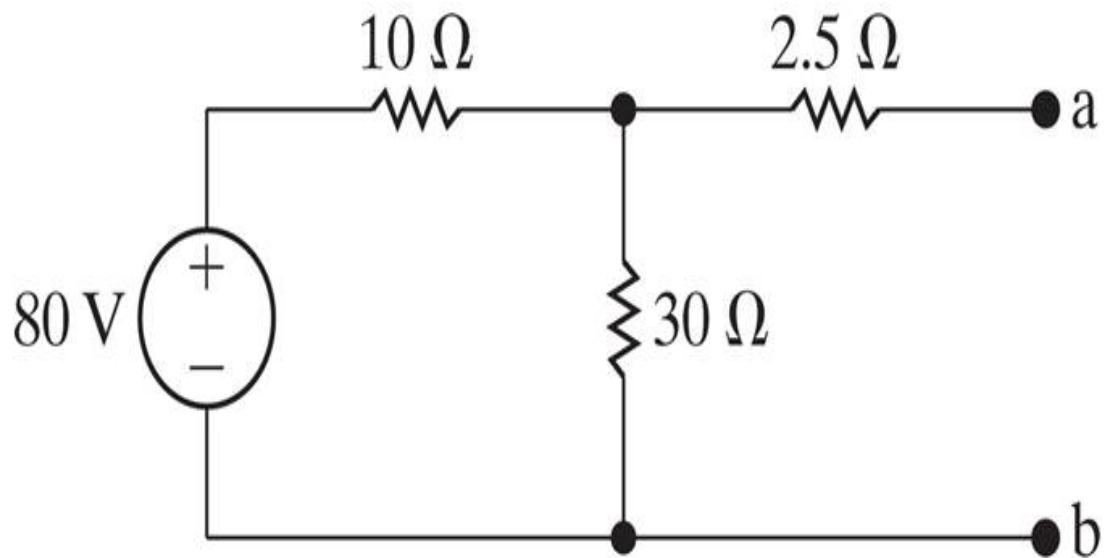
Q5b

Find the Norton equivalent circuit with respect to terminals ab.

I_N = [6] ✓ A

R_{Th} = [10] ✓ Ω (Ohm)

Numeric Answer

I_N = = 6 A

R_{Th} = 10 Ω (Ohm)

Correct

Marks for this submission: 15.00/15.00.

Q6j

Given:

V_s = 40 Volts R_1 = 140 Ω (Ohm) R_2 = 84 Ω (Ohm)

a) Find the value of R_L that results in maximum power being transferred to R_L.

$R_{L,max\ power}$ = [52.5] ✓ Ω (Ohms)

b) Find the maximum power that can be delivered to R_L.

$P_{RL,max\ power}$ = [1.07] ✓ Watts

Numeric Answer

a) $R_{L,max\ power}$ = 52.50 Ω (Ohms)

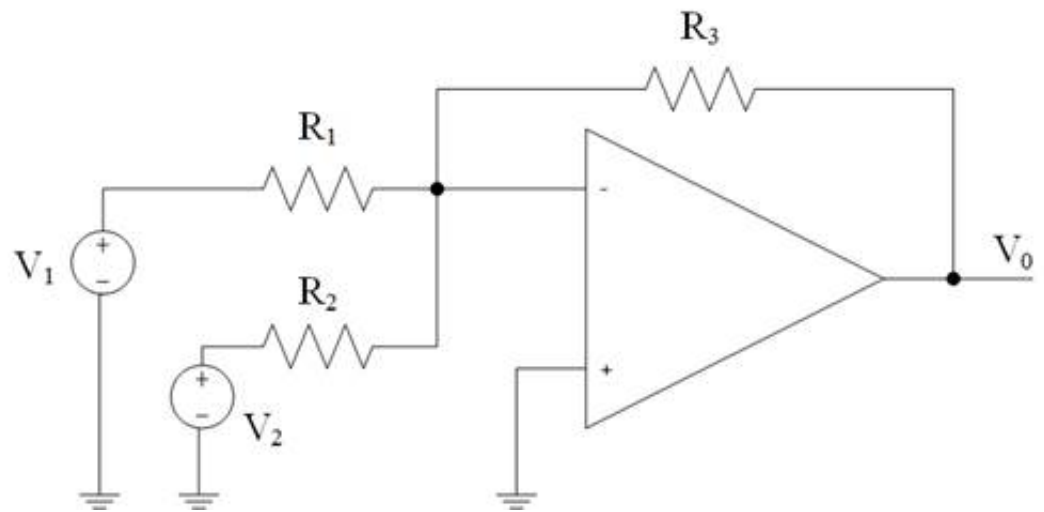b) $P_{RL,max\ power}$ = 1.071 Watts

Correct

Marks for this submission: 10.00/10.00.

Question 7

Not answered

Mark 0.00 out of 5.00

Q7j

Assume that the operational amplifier is ideal.

The opamp has two power inputs (not shown) of $+V_{cc} = +15V$ and $-V_{cc} = -15V$.

Given: $V_1 = 10$ Volts $V_2 = 10$ Volts

$R_1 = 2\ k\Omega$ (kilo Ohm) $R_2 = 3\ k\Omega$ (kilo Ohm) $R_3 = 1.5\ k\Omega$ (kilo Ohm)

Determine the voltage v_{out}.

$v_{out} = $ [   ] ✗ Volts
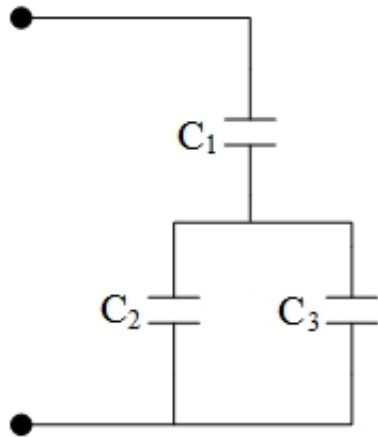

Numeric Answer

$v_{out} = $ -12.5 Volts
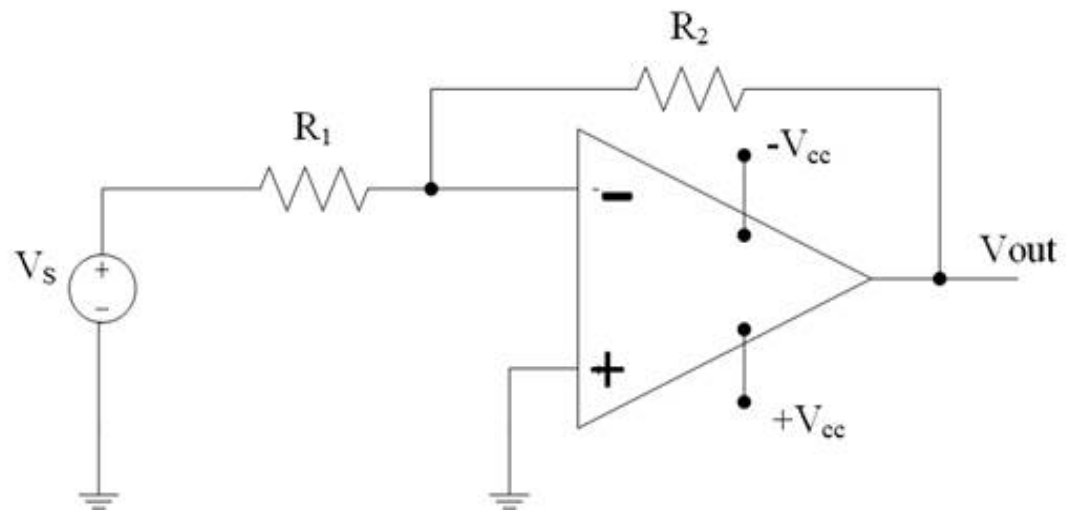
Q8c

Assume that the operational amplifier is ideal.

The opamp has two power inputs $+V_{cc} = +15V$ and $-V_{cc} = -15V$.

Given: V_S = -3.0 Volts R_1 = 47 kΩ (kilo Ohm) R_2 = 270 kΩ
(kilo Ohm)

Determine the voltage V_{out}.

V_{out} = [-17.23] ✗ Volts

Numeric Answer

V_{out} = 15.0 Volts

 Incorrect

Marks for this submission: 0.00/5.00.

Q9e

Given:

$C_1 = 10 \mu F$ (micro F) $C_2 = 6 \mu F$ (micro F) $C_3 = 4 \mu F$ (micro F)

Find the equivalent capacitance C_{Eq}.
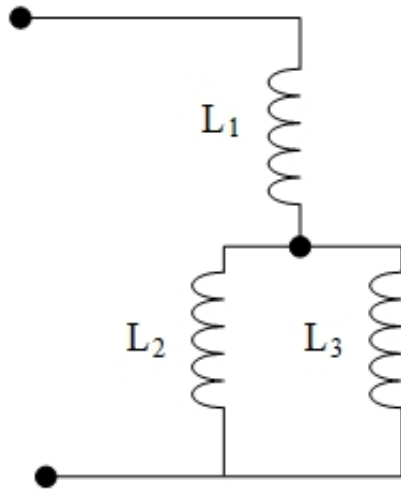
$C_{Eq} =$ [5] ✓ µF (micro F)

Numeric Answer

$C_{Eq} = 5.0 \mu F$ (micro F)

 Correct
Marks for this submission: 5.00/5.00.

Question 10

Correct

Mark 5.00 out of 5.00

Q10h

Given:

$L_1 = 1$ mH (milli H) $L_2 = 4$ mH (milli H) $L_3 = 7$ mH (milli H)

Find the equivalent inductance L_{Eq}.

$L_{Eq} = \boxed{3.55}$ ✔} mH (milli H)

Numeric Answer

$L_{Eq} = 3.5455$ mH

Correct

Marks for this submission: 5.00/5.00.