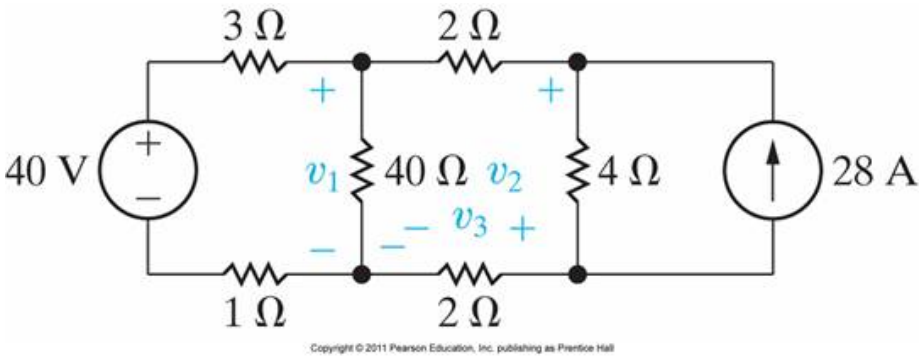
Started on	Wednesday, 2 November 2016, 11:55 AM
State	Finished
Completed on	Wednesday, 2 November 2016, 12:55 PM
Time taken	1 hour
Grade	**82.50** out of 100.00

Question 1

Partially correct

Mark 7.50 out of 15.00



Q1e

a) Find the voltage v_1.

v_1 = 60 ✓ Volts

b) Find the voltage across the 28A current source.

V_{28A} = 40 ✗ Volts

Numeric Answer

v_1 = 60V

v_{28A} = 86V

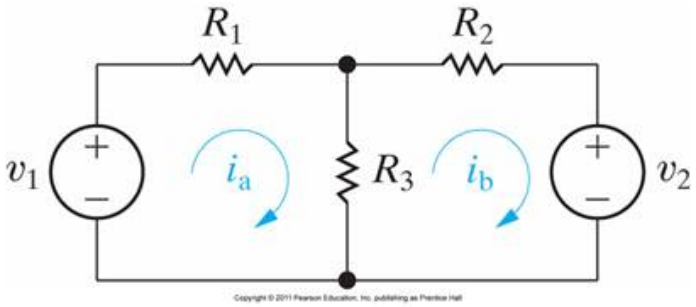
Partially correct

Marks for this submission: 7.50/15.00.

Question 2

Correct

Mark 15.00 out of 15.00



Q2c

Given:

v_1 = 28 Volts v_2 =14 Volts

R_1 = 10 Ω (Ohms) R_2 = 20 Ω (Ohms) R_3 = 40 Ω (Ohms)

Find the currents i_a and i_b.

i_a = 800 ✓ mA (milli Amp)

i_b = 300 ✓ mA (milli Amp)

Numeric Answer

i_a = 800 mA

i_b = 300 mA

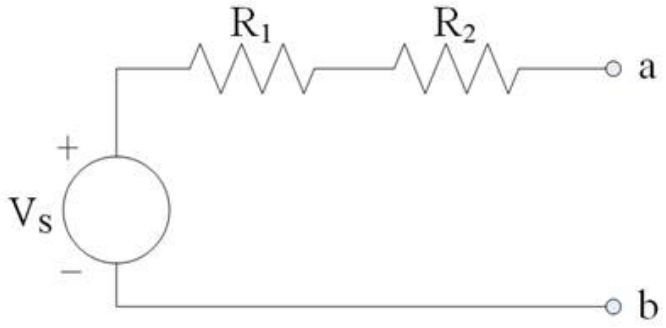
Correct

Marks for this submission: 15.00/15.00.

Question 3

Correct

Mark 10.00 out of 10.00



Q3a

Given: V_s= 200 Volts R_1 = 100 Ω (Ohms) R_2 = 300 Ω (Ohms)

Perform a source transformation and find the current transform equivalent.

$I_{transform}$ = .5 ✓ A

$R_{transform}$= 400 ✓ Ω (Ohm)

Numeric Answer

$I_{transform}$ = 0.50 A

$R_{transform}$= 400 Ω (Ohm)

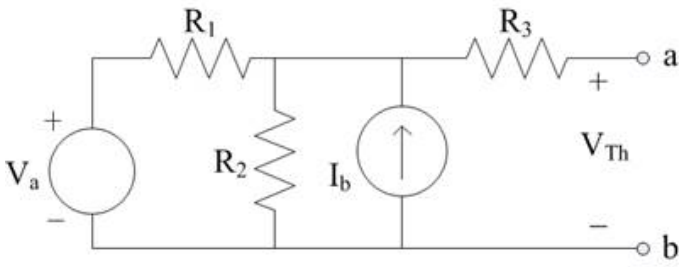
Correct

Marks for this submission: 10.00/10.00.

Question 4

Correct

Mark 15.00 out of 15.00



Q4f

Given:

V_a = 20 Volts I_b = 6 Amps

R_1 = 20 Ω (Ohm) R_2 = 60 Ω (Ohm) R_3 = 10 Ω (Ohm)

a) Find the Thévenin equivalent voltage V_{Th}. V_{Th} = 105 ✓ Volts

b) Find the Thévenin equivalent resistance R_{Th}. R_{Th} = 25 ✓ Ω (Ohms)

Numeric Answer

a) V_{Th} = 105.0 Volts

b) R_{Th} = 25.0 Ω (Ohms)

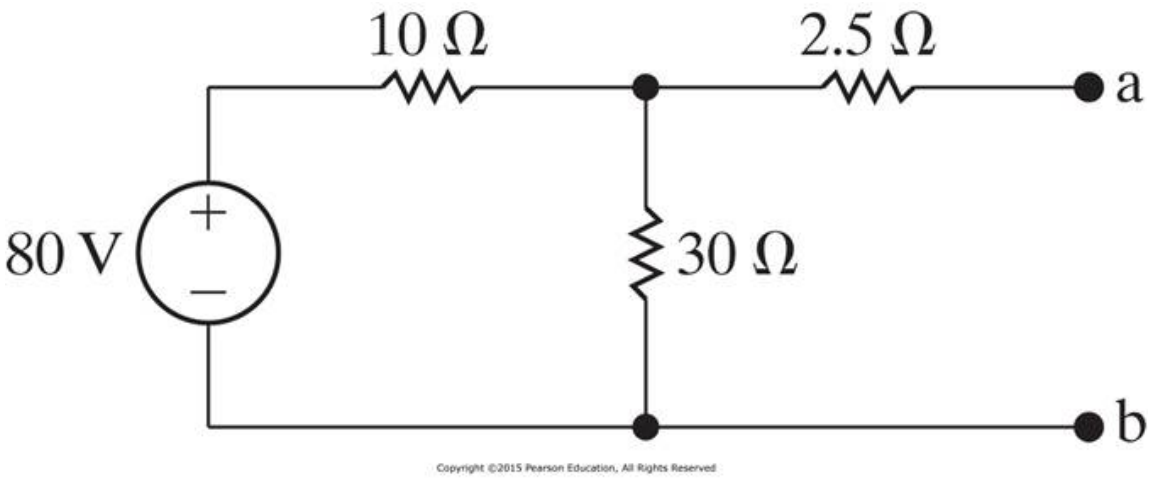
Correct

Marks for this submission: 15.00/15.00.

Question 5

Correct

Mark 15.00 out of 15.00



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)

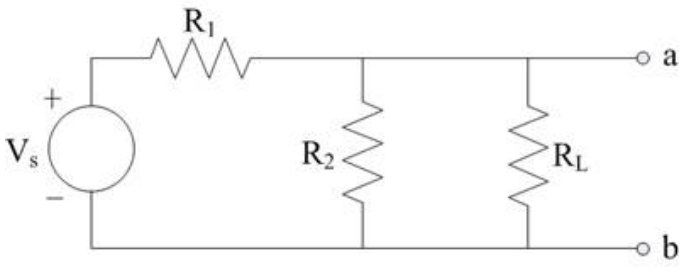
Correct

Marks for this submission: 15.00/15.00.

Question 6

Correct

Mark 10.00 out of 10.00



Q6e

Given:

V_s = 30 Volts R_1 = 140 Ω (Ohm) R_2 = 140 Ω (Ohm)

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

$R_{L,max\ power}$ = 70 ✓ Ω (Ohms)

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

$P_{RL,max\ power}$ = .803 ✓ Watts

Numeric Answer

a) $R_{L,max\ power}$ = 70.0 Ω (Ohms)

b) $P_{RL,max\ power}$ = 0.8036 Watts

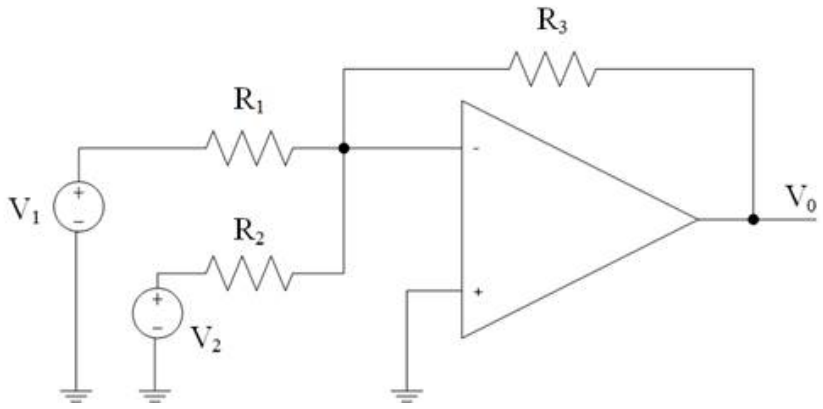
Correct

Marks for this submission: 10.00/10.00.

Question 7

Not answered

Mark 0.00 out of 5.00



Q7k

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 = 5 Volts V_2 = 8 Volts

R_1 = 2 kΩ (kilo Ohm) R_2 = 3 kΩ (kilo Ohm) R_3 = 1.5 kΩ (kilo Ohm)

Determine the voltage v_{out}.

v_{out} = ✗ Volts

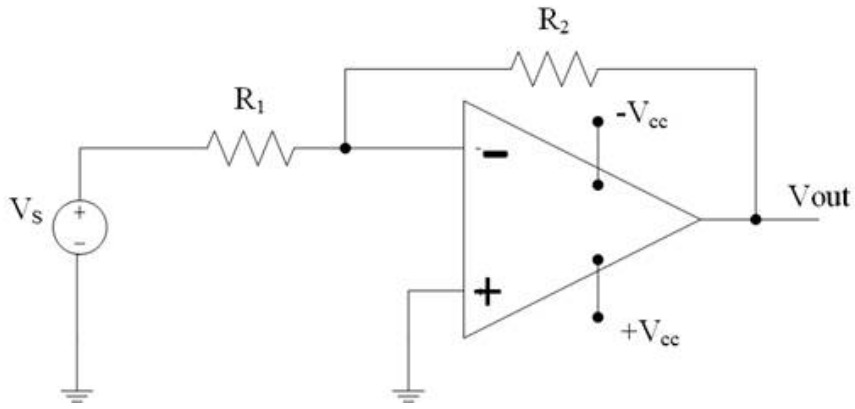
Numeric Answer

v_{out} = -7.75 Volts

Question 8

Incorrect

Mark 0.00 out of 5.00



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 ✗ Volts

Numeric Answer

v_{out} = 15.0 Volts

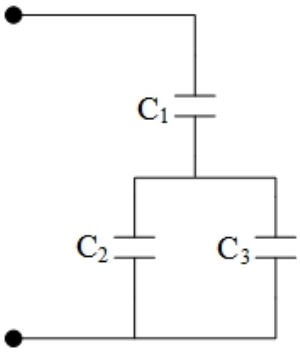
Incorrect

Marks for this submission: 0.00/5.00.

Question 9

Correct

Mark 5.00 out of 5.00



Q9d

Given:

C_1 = 20 μF (micro F) C_2 = 6 μF (micro F) C_3 = 14 μF (micro F)

Find the equivalent capacitance C_{Eq}.

C_{Eq} = 10 ✓ μF (micro F)

Numeric Answer

C_{Eq} = 10.0 μF (micro F)

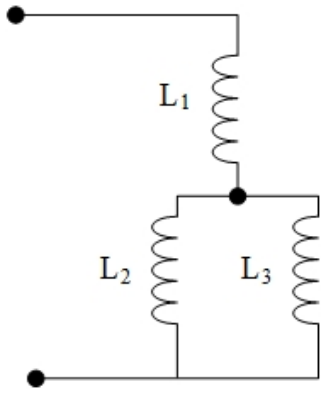
Correct

Marks for this submission: 5.00/5.00.

Question 10

Correct

Mark 5.00 out of 5.00



Q10d

Given:

L_1 = 3 mH (milli H) L_2 = 10 mH (milli H) L_3 = 6 mH (milli H)

Find the equivalent inductance L_{Eq}.

L_{Eq} = 6.75 mH (milli H)

Numeric Answer

L_{Eq} = 6.750 mH

Correct

Marks for this submission: 5.00/5.00.