

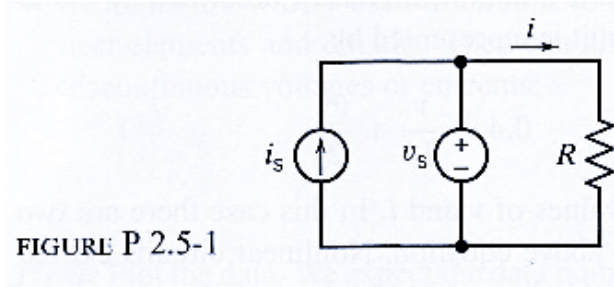
Universidad de Puerto Rico
Recinto Universitario de Mayagüez
Departamento de Ingeniería Eléctrica y Computadoras

INEL 4075 Asignacion para parcial #1:

Nombre: _____

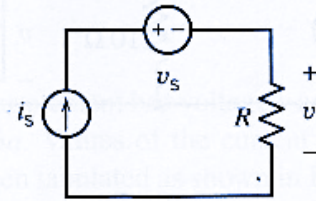
Sección: _____

1. Mencione 4 razones por que estudiantes de otras ingenierías necesitan aprender los fundamentos de la ingeniería eléctrica.
2. ¿Quieres ser ingeniero? ¿Qué eventos y personas en tu vida te convencieron tomar esta decision?
3. Con un amperímetro mides la corriente que fluye por un cable y lees -5A. ¿Qué significa el signo negativo? ¿Cuánta carga fluye por una sección transversal del cable en 3 segundos?



P2.5-1 A current source and a voltage source are connected in parallel with a resistor as shown in Figure P2.5-1. All of the elements connected in parallel have the same voltage, v_s in this circuit. Suppose that $v_s = 15 \text{ V}$, $i_s = 3 \text{ A}$, and $R = 5 \Omega$.
(a) Calculate the current i in the resistor and the power absorbed by the resistor.
(b) Change the current source current to $i_s = 5 \text{ A}$ and recalculate the current, i , in the resistor and the power absorbed by the resistor.

FIGURE P 2.5-2



P2.5-2 A current source and a voltage source are connected in series with a resistor as shown in Figure P 2.5-2. All of the elements connected in series have the same current, i_s , in this circuit. Suppose that $v_s = 10$ V, $i_s = 2$ A, and $R = 5$ Ω .

(a)

Calculate the voltage v across the resistor and the power absorbed by the resistor.

(b) Change the voltage source voltage to $v_s = 5$ V and recalculate the voltage, v , across the resistor and the power absorbed by the resistor.

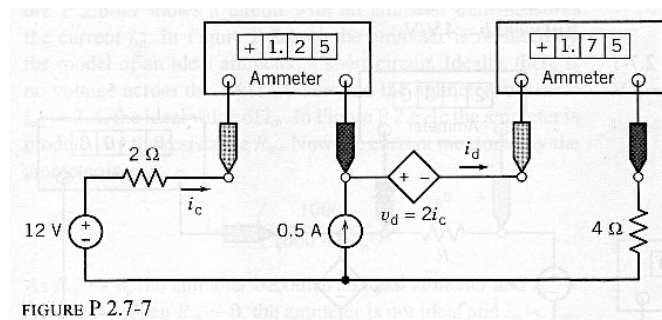


FIGURE P 2.7-7

P 2.7-7 Find the power absorbed by the CCVS in Figure P 2.7-7.

4.

P2.34. The 9-V source in Figure P2.34 is delivering 27 W of power. All three resistors have the same value R . Find the value of R .

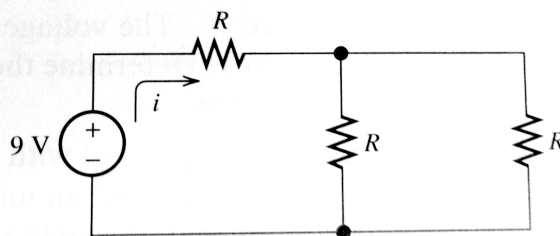


Figure P2.34

5.

***P2.47.** Write equations and solve for the node voltages shown in Figure P2.47. Then, find the value of i_1 .

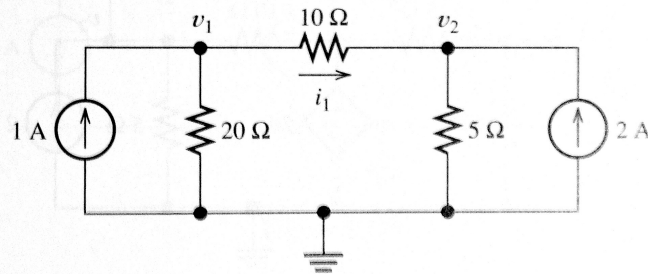


Figure P2.47

6.

P2.62. Solve for the power delivered by the voltage source in Figure P2.62, using the mesh-current method.

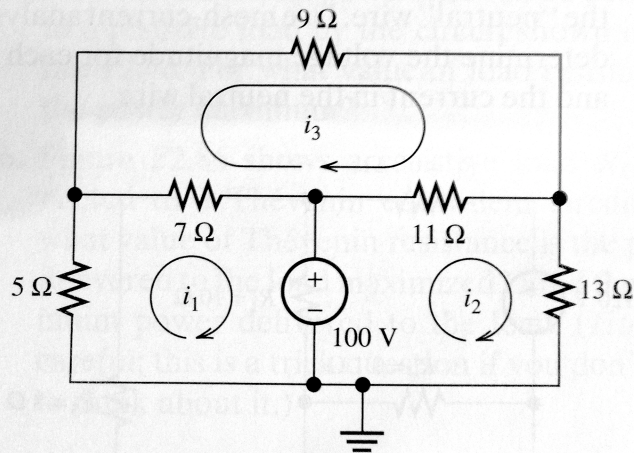


Figure P2.62