

King Fahd University of Petroleum & Minerals  
 Electrical Engineering Department  
 EE201- 07 Electric Circuits  
 Quiz # 1

Name:

I.D#

Serial Number:

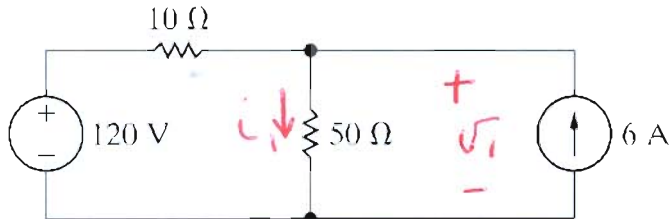


Figure 02-18Ex2.8

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- (a) Use Kirchhoff's laws and Ohm's law to find  $i_o$  in the circuit shown.  
 (b) Test the solution for  $i_o$  by verifying that the total power generated equals the total power dissipated.

a)

$$i_1 - i_o - 6 = 0$$

$$-120 + 10i_o + 50i_1 = 0$$

$$i_o = -3A \quad \text{and} \quad i_1 = 3A$$

b)

$$P_{50\Omega} = (3)^2(50) = 450W \quad \text{Absorbed}$$

$$P_{10\Omega} = (-3)^2(10) = 90W \quad \text{Absorbed}$$

$$P_{120V} = (-120)(-3) = 360 \quad \text{Absorbed}$$

$$\sum P_{50\Omega} + P_{10\Omega} + P_{120V} = 900W \quad \text{absorbed}$$

$$P_{6A} = (-v_1)(6) = -(50)i_1(6) = -900W$$

$$P_{6A} = -150 \quad \text{delivered}$$

$$\sum \text{power absorbed} = \text{Power delivered}$$