1–13 The 12-V automobile battery in Figure Pl–13 has an output capacity of 100 ampere-hours (Ah) when connected to a head lamp that absorbs 200 watts of power. Assume the battery voltage is constant.

(a) Find the current supplied by the battery.

(b) How long can the battery power the headlight?

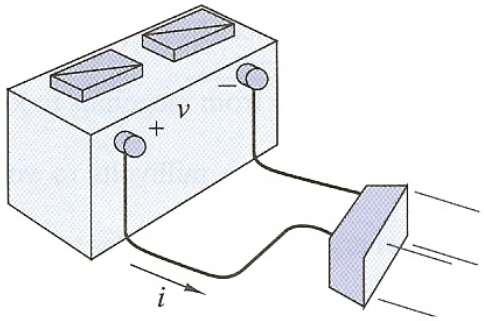

FIGURE P 1 – 13

1–21 Two electrical devices are connected as shown in Figure P1–21. Using the reference marks shown in the figure, find the power transferred and state whether the power is transferred from A to B or B to A when

(a) $v = +33$ V and $i = -2.2$ A

(b) $v = -12$ V and $i = -1.2$ mA

(c) $v = +37.5$ V and $i = +40$ mA

(d) $v = -15$ V and $i = -43$ mA

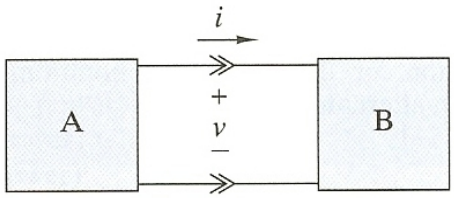

FIGURE P 1 – 21

2–5 In Figure P2–5 find R_x and the power delivered to the resistor.

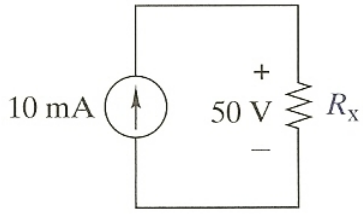

FIGURE P 2 – 5

2–10 In Figure P2–10 $i_2 = 2$ A and $i_3 = -5$ A. Find i_1 and i_4.

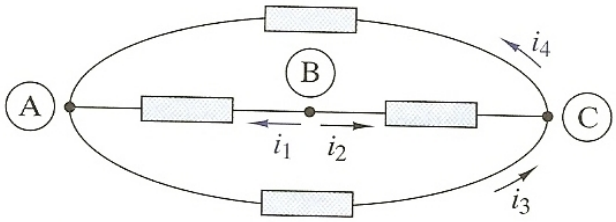

FIGURE P 2 – 10

2–28 Find the equivalent resistance R_{EQ} in Figure P2–28.

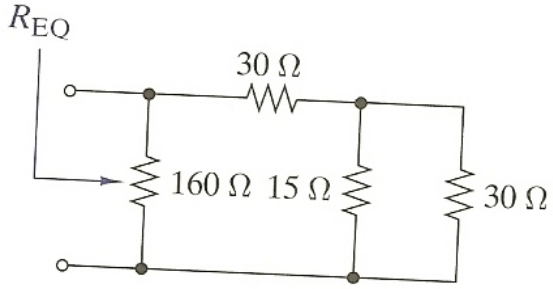

FIGURE P 2 – 28

2–40 Find the equivalent resistance between terminals A and B in Figure P2–40.

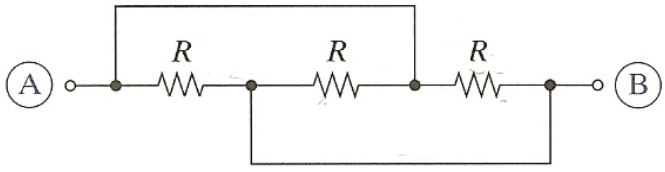

FIGURE P 2 – 40