

CECS 211 – HW 1

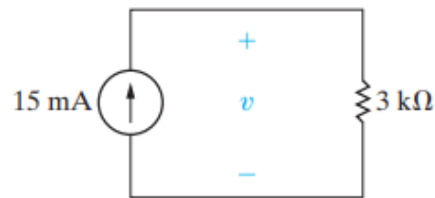
For each problem, please show your entire work and submit via canvas. These problems are taken from chapters two and three from *J. Nilsson and S. Riedel, Electric Circuits, 10th*.

1.

2.11 For the circuit shown in Fig. P2.11

- Find v .
- Find the power absorbed by the resistor.
- Reverse the direction of the current source and repeat parts (a) and (b).

Figure P2.11

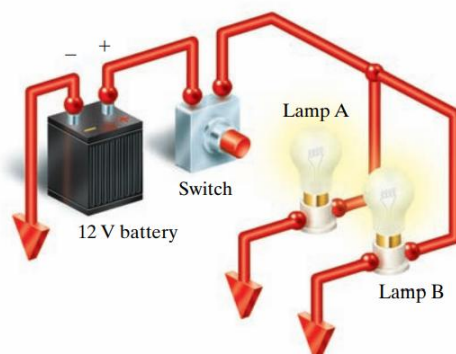


2.

2.13 A pair of automotive headlamps is connected to a 12 V battery via the arrangement shown in Fig. P2.13. In the figure, the triangular symbol ▼ is used to indicate that the terminal is connected directly to the metal frame of the car.

- Construct a circuit model using resistors and an independent voltage source.
- Identify the correspondence between the ideal circuit element and the symbol component that it represents.

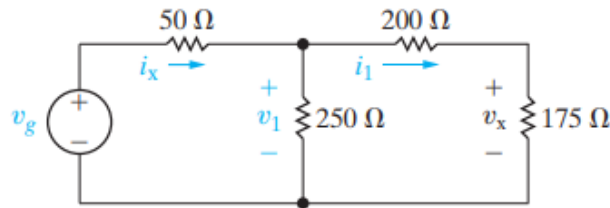
Figure P2.13



3.

- 2.20** The current i_x in the circuit shown in Fig. P2.20 is 50 mA and the voltage v_x is 3.5 V. Find (a) i_1 ; (b) v_1 ; (c) v_g ; and (d) the power supplied by the voltage source.

Figure P2.20



4.

- 3.3** For each of the circuits shown in Fig. P3.3,
 a) identify the resistors connected in series,
 b) simplify the circuit by replacing the series-connected resistors with equivalent resistors.
- 3.4** For each of the circuits shown in Fig. P3.3,
 a) identify the resistors connected in parallel,
 b) simplify the circuit by replacing the parallel-connected resistors with equivalent resistors.
- 3.5** For each of the circuits shown in Fig. P3.3,
 a) find the equivalent resistance seen by the source,
 b) find the power developed by the source.

Figure P3.3

