This guide provides problem statements for 30 exercises that are collectively known as *Circuit Boot Camp*. Letter variables next to each component reflect specific values in the corresponding columns of your personalized Excel key. All units are volts, amperes, ohms, or watts.

Provide answers in other columns of your Excel key as indicated.
Circuit Boot Camp
Survival Guide

Part 1
Problem 1

1. Determine $i_x$. (Column L, amperes)

2. Determine the power "supplied" by source C. (Column M, watts)

Note: "Supplied" power is negative dissipated power. (See N & R, Fig. 1.3b).
Problem 2

1. Determine $v_x$. (Column L, volts)

2. Determine the power "supplied" by source D. (Column M, watts)
Problem 3

1. Determine the power "supplied" by source A. (Column L, watts)

2. Determine the power "supplied" by source D. (Column M, watts)
Problem 4

1. Determine $i_a$. (Column L, amperes)

2. Determine $i_b$. (Column M, amperes)
Problem 5

A switch has zero resistance when closed and infinite resistance when open.

1. Determine $R_{ab}$ when the switch is closed. (Column L, ohms)

2. Determine $R_{ab}$ when the switch is open. (Column M, ohms)
Problem 6

1. Determine $R_{ab}$ when terminals c and d are shorted. (Column L, ohms)

2. Determine $R_{cd}$ when terminals a and b are open. (Column M, ohms)
Problem 7

1. Determine $R_x$. (Column L, ohms)

2. Determine $R_y$. (Column M, ohms)
Problem 8

The circuit drawn below operates with \( v = 2 \) V.

1. Determine \( v_x \). (Column L, volts)

2. Determine \( i_x \). (Column M, amperes)
Problem 9

The currents $i_1$ and $i_2$ are 2 A and 5 A, respectively.

1. Determine $V_1$. (Column L, volts)

2. Determine $V_2$. (Column M, volts)
Problem 10

The currents $i_1$ and $i_2$ are 3 A and 1 A, respectively.

1. Determine $v_x$. (Column L, volts)

2. Determine $i_x$. (Column M, amperes)