

Interactive Examples and Exercises

Numerous examples throughout the textbook *Introduction to Electric Circuits* are labeled as “Interactive Examples”. This label indicates that computerized versions of the example are available using the links in these web pages. Figures 1-3 illustrate the relationship between the textbook example and the computerized example. Figure 1 shows an example from Chapter 3.

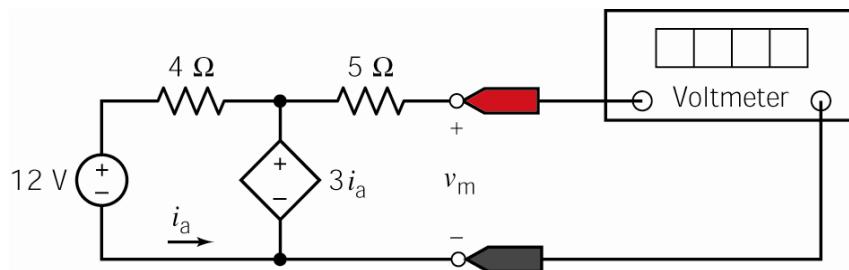
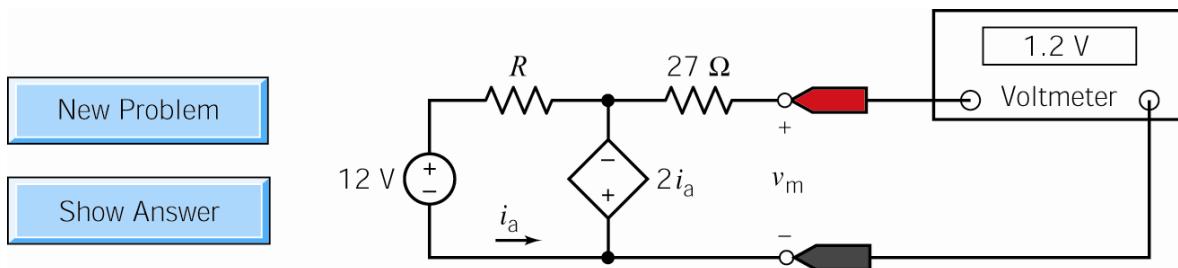


Figure 1 (a) The circuit considered Example 3.2-5.

The problem presented by the Interactive Example shown in Figure 2 is similar to the textbook example but different in several ways:

- The values of the circuit parameters have been randomized.
- The independent and dependent sources may be reversed.
- The reference direction of the measured voltage may be reversed.
- A different question is asked. Here we've been asked to work the textbook problem backwards, using the measured voltage to determine the value of a circuit parameter.



The voltmeter measures a voltage in volts.
What is the value of the resistance, R , in Ω ?

Figure 2 The Interactive Example corresponding to textbook Example 3.2-5.

The Interactive Example poses a problem, then accepts and checks the user's answer. Students are provided with immediate feedback regarding the correctness of their work. The Interactive

Example chooses parameter values somewhat randomly and so provides a seemingly endless supply of problems. This pairing of a solution to a particular problem with an endless supply of similar problems is an effective aid for learning about electric circuits.

The Interactive Exercise shown in Figure 3 considers a similar, but different, circuit. Like the Interactive Example, the Interactive Exercise poses a problem, then accepts and checks the user's answer. Student learning is further supported by extensive help, in the form of worked example problems, available from within the Interactive Exercise using the "Worked Example" button.

Variations of this problem are obtained using the "New Problem" button. We can peek at the answer using the "Show Answer" button. The Interactive Example and Exercises provide hundreds of addition practice problems with countless variations, all with answers that are checked immediately by the computer.

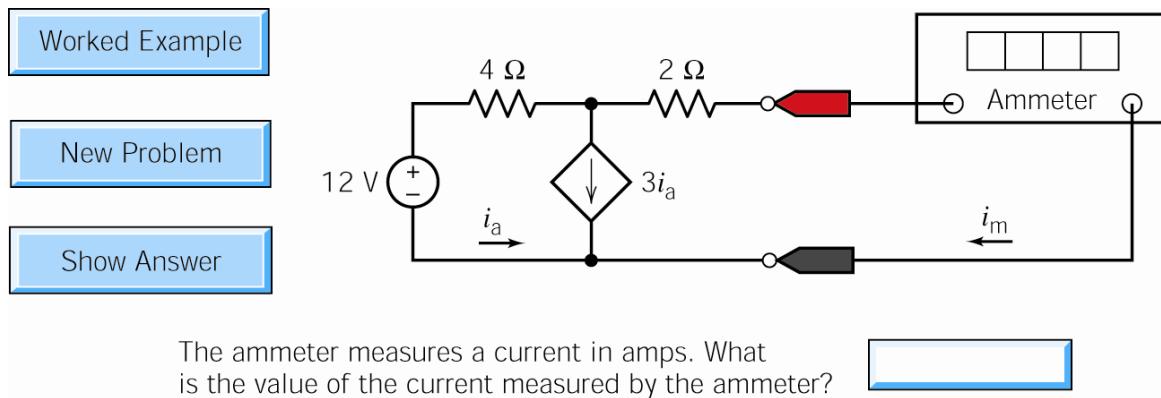


Figure 3 An Interactive Exercise similar to textbook Example 3.2-5..