Table 8-2 summarizes the basic characteristics of the five most popular variants of 802.11 as of early 2016. Currently, most wireless networks are based on the 802.11n and 802.11ac standards.

TABLE 8-2 802.11 Variations

Standard	Speeds	Frequency	Typical Range (Indoors)
802.11a	Up to 54 Mbps	5 GHz	150 feet
802.11b	Up to 11 Mbps	2.4 GHz	300 feet
802.11g	Up to 54 Mbps	2.4 GHz	300 feet
802.11n	Up to 600 Mbps (but most devices are in the 100 Mbps range)	2.4 GHz	230 feet
802.11ac	Up to 1,300 Mbps	5 GHz	230 feet

Home on the Range

The maximum range of an 802.11ac wireless device indoors is about 230 feet. This can have an interesting effect when you get a bunch of wireless computers together such that some of them are in range of one another but others are not. Suppose that Bart, Homer, and Lisa all have wireless laptops. Bart's computer is 150 feet away from Homer's computer, and Bart's computer is 150 feet away from Lisa's in the opposite direction (see Figure 8-2). In this case, Bart can access both Homer's and Lisa's computers, but Homer can access only Bart's computer, and Lisa can access only Bart's computer. In other words, Homer and Lisa won't be able to access each other's computers because they're 300 feet away from each other, well beyond the 230-foot range limit. (This is starting to sound suspiciously like an algebra problem. Now suppose that Homer starts walking toward Bart at 2 miles per hour, and Lisa starts running toward Bart at 4 miles per hour. . . .)

Note: Although the normal range for 802.11ac is 230 feet, the range may be less in actual practice. Obstacles — solid walls, bad weather, cordless phones, microwave ovens, backyard nuclear reactors, and so on — can all conspire to reduce the effective range of a wireless adapter. If you're having trouble connecting to the network, sometimes just adjusting the antenna helps.

Also, wireless networks tend to slow down when the distance increases. 802.11ac network devices claim to operate at 1,300 Mbps, but they usually achieve that speed only at close range. The farther out you get, the slower the actual speed becomes. At maximum distance, you may be able to connect, but your effective