Table 5-2 A Sample Problem for Finding the Critical Path and Critical Time

Activity	*Predecessor*	*Duration*
a	—	5 days
b	—	4
c	a	3
d	a	4
e	a	6
f	b, c	4
g	d	5
h	d, e	6
i	f	6
j	g, h	4

but it is simple enough to add them by showing the event (usually a milestone) exactly as if it were an activity but with zero time duration and no resources. The PM should be familiar with both types of networks.

Finding the Critical Path and Critical Time

Let us now consider a more complicated example. Given the data in Table 5-2, we can start drawing the associated AON network as in Figure 5-7. The activity names and durations are shown in the appropriate nodes.

Note that activity **f** follows both **b** and **c**. If we redraw Figure 5-7 and place the **c** node below the **d** and **e** nodes, we will avoid having several of the arrows crossing one another; see Figure 5-8 for the complete network. This kind of rearrangement is quite common when drawing networks, and most software will allow the user to click and drag nodes around to avoid the confusion of too many crossing arrows.

We can add information to the nodes in the network. Just above each node it is common practice to show what is called the *earliest start time* (ES) and *earliest finish time* (EF) for the associated activity. Just below each node is shown the *latest start time* (LS) and *latest finish time* (LF) for the activity. The node would appear as in Figure 5-9. The corresponding information for Figure 5-8 is shown in Figure 5-10 and its derivation is described in detail just below.

Activities **a** and **b** may start on Day 0, their ESs. Their EFs will be equal to their durations, five and four days, respectively. Tasks **c**, **d**, and **e** cannot start before **a** is

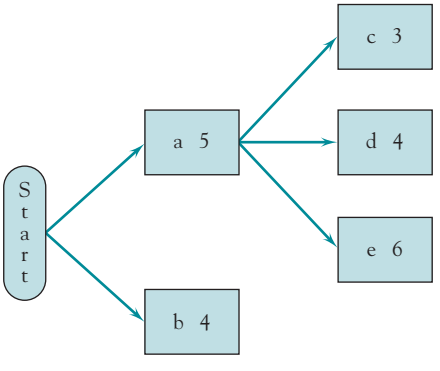

Figure 5-7 Stage 1 of a sample network from Table 5-2.