

**TABLE 8.15** Expected Time and Variance Calculations

Activity	Optimistic Time	Most Likely Time	Pessimistic Time	Expected Time	Variance
A	3	3	5	3.33	0.11
B	3	4	5	4.00	0.11
C	4	5	7	5.17	0.25
D	2	2	4	2.33	0.11
E	1	2	2	1.83	0.03
F	2	3	6	3.33	0.44
G	1	1	4	1.50	0.25

3. Using the NORMDIST function in Excel or the normal distribution table in the Appendix, we can find the probability that the project will be completed in 15 hours or less to be 0.9484.

## PROBLEMS

1. Table 8.16 shows the activities, durations, and precedence relationships for a project.

**TABLE 8.16** Activity Times and Immediate Predecessors

Activity	Duration (days)	Immediate Predecessor
P	3	None
Q	5	P
R	4	P
S	2	Q, R
T	6	S

- Construct an activity on node (AON) network for this project.
- Calculate the length of each project path and find how long it will take to complete the project.
- Identify the project critical path and critical activities.

2. Table 8.17 shows the normal time, crash time, and crash costs for the project described in Table 8.16 (Problem 1).

**TABLE 8.17** Activity Times and Immediate Predecessors

Activity	Normal Duration (days)	Crash Duration (days)	Crash Cost (per day)
P	3	2	\$5,000
Q	5	3	\$2,000
R	4	4	—
S	2	2	—
T	6	4	\$1,500

- Based on the information provided in Table 8.17, develop a cost and time tradeoff table.
- If an additional \$10,000 can be spent, what will be the new project duration?