

10. Define each of these terms, and indicate how each is determined.
    - a. Expected activity time.
    - b. Variance of an activity time.
    - c. Standard deviation of a path's time.
  11. Why might a person wish to be involved with a critical path activity? What are some of the reasons one might have for not wanting this association?
  12. What are some of the potential benefits of working on a special project in one's firm? What are some of the risks?
  13. What are some aspects of the project manager's job that make it more demanding than the job of a manager working in a more routine organizational framework?
  14. What is the main benefit of a project organization over more traditional forms of operations management for project work?
1. What trade-offs are associated with time and cost estimates for a proposed project?
  2. Who needs to be involved in assessing the cost of a project?
  3. Name and explain briefly two ways that technology has had an impact on project management.

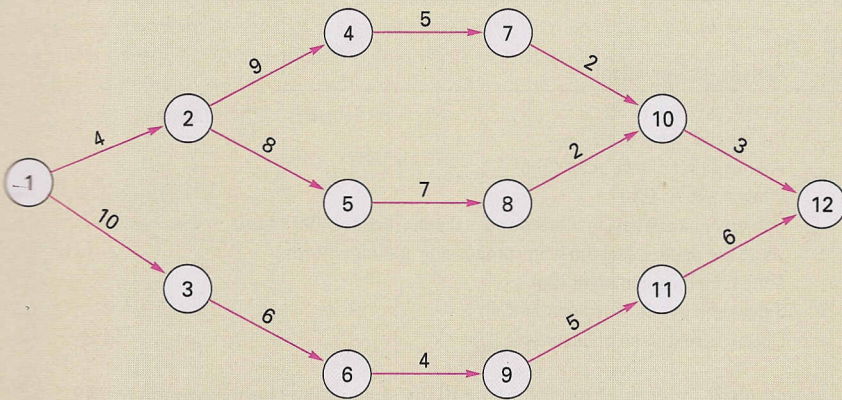
TAKING STOCK

Project management techniques have been used successfully for a wide variety of efforts, including the many NASA space missions, huge construction projects, implementation of major systems such as ERP, production of movies, development of new products and services, theatrical productions, and much more. Why not use them for managing the operations function of any business?

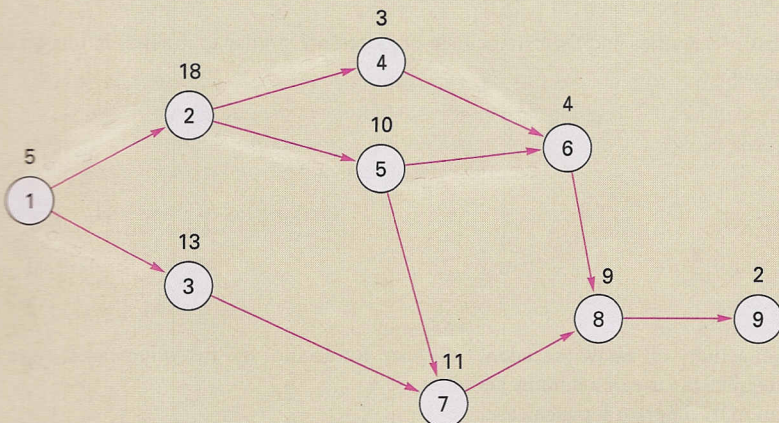
CRITICAL THINKING EXERCISE

1. For each of the following network diagrams, determine both the critical path and the expected project duration. The numbers on the arrows represent expected activity times.
  - a. AOA diagram

PROBLEMS

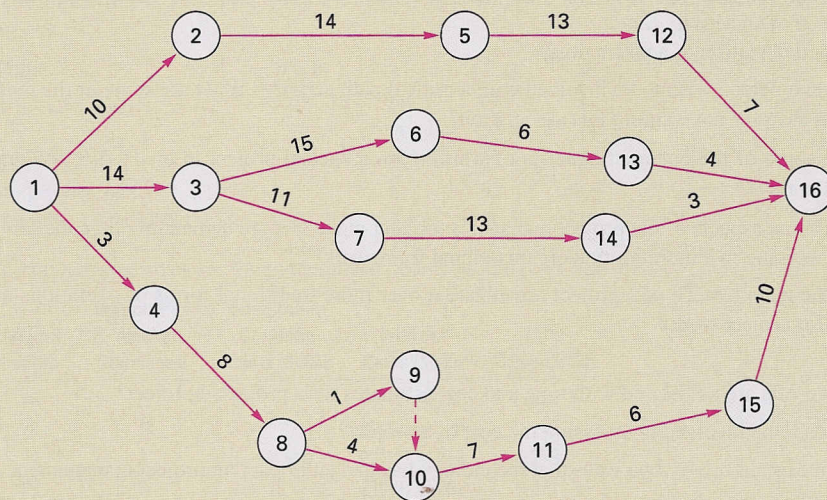


- b. AON diagram





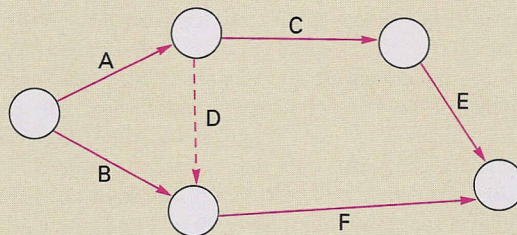
c. AOA diagram



2. Chris received new word processing software for her birthday. She also received a check, with which she intends to purchase a new computer. Chris's college instructor assigned a paper due next week. Chris decided that she will prepare the paper on the new computer. She made a list of the activities she will need to do and their estimated times.
  - a. Arrange the activities into two logical sequences.
  - b. (1) Construct an AOA network diagram.  
(2) Construct an AON diagram.
  - c. Determine the critical path and the expected duration time.
  - d. What are some possible reasons for the project to take longer than the expected duration?

Estimated Time (hrs.)	Activity (abbreviation)
0.8	Install software (Inst)
0.4	Outline the paper (Out)
0.2	Submit paper to instructor (Sub)
0.6	Choose a topic (Ch)
0.5	Use grammar-checking routine and make corrections (Ck)
3.0	Write the paper using the word-processing software (Write)
2.0	Shop for a new computer (Sh)
1.0	Select and purchase computer (Sel)
2.0	Library research on chosen topic (Lib)

3. Prepare a Gantt chart for each of the following in the style of the chart shown on p. 785.
  - a. The bank location problem (see Figure 17.4, p. 786). *Hint:* Use the early start (ES) times given in Table 17.3 on p. 796.
  - b. Solved Problem number 2 on p. 811.
4. a. Develop a list of activities and their immediate predecessors similar to the lists in this problem for this diagram:



- b. Construct an activity-on-arrow precedence diagram for each of the following cases. Note that each case requires the use of a dummy activity.
- c. Construct an AON diagram for each case.