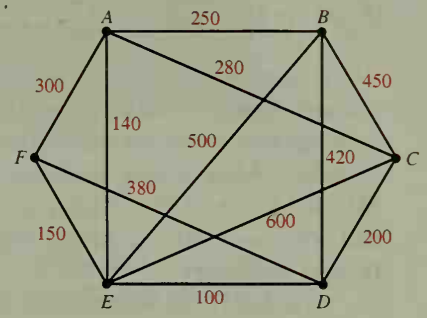
4. a. Give an example of a situation in which a person or a company might want to find a *maximal* spanning tree.

b. Copy the graph in Exercise **1** and find a maximal spanning tree. Remember that a tree has no circuits.

c. If the numbers in Exercise **1** indicate cost in hundreds of dollars, find the difference in the costs of the network formed by the *minimal* spanning tree and the network formed by the *maximal* spanning tree.



5. The graph at the right shows the dollar costs required to connect various computers (vertices A–F) to form a computer network. What is the minimal cost of a network that links the six computers?

6. A real estate developer wants to connect locations A, B, C, D, E, and F with roads, keeping costs to a minimum. The table at the right gives estimates of the costs, in thousands of dollars, for building roads between each pair of locations. Draw a graph and find the minimum cost of connecting the six locations.

	A	B	C	D	E	F
A		18	21	30	15	9
B			10	18	13	22
C				8	12	18
D					16	24
E						11
F						

7. a. The graph at the right shows the costs, in thousands of dollars, of building sidewalks between buildings on a college campus. Although a sidewalk between the Administration Building and the college president's home is the most expensive, the president insists that it be built. What then is the minimum cost of joining the locations?

b. How much more does this cost than the least expensive network that does not include the sidewalk between the Administration Building and the president's home?