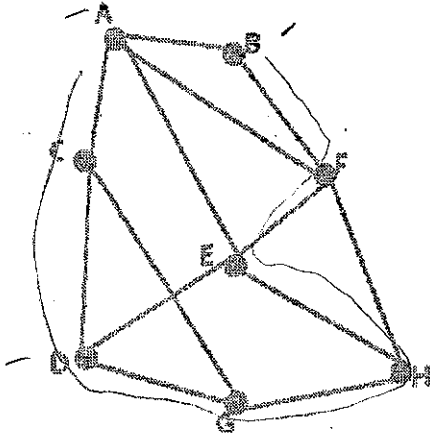


SECTION 15.3

Examples:

For Exercises 1 and 2, use the graph shown

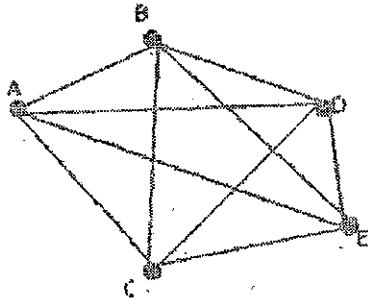


1. Find a Hamilton path that begins at A and ends at D from the graph above.
2. Find a Hamilton circuit that begins as B, F, ... from the graph above.

A B F E H G C D
 B F E H G D C A

3. For each graph determine if the graph must have Hamilton circuits. If so, determine the number of such circuits.

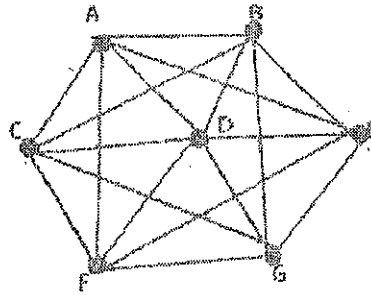
a.



Complete Graph

Yes $(5-1)! = 4! = 4 \cdot 3 \cdot 2 \cdot 1 = 24$

b.



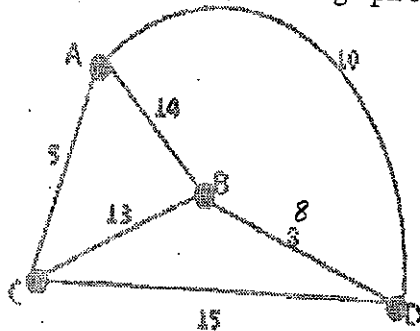
NOT Complete

4. Determine the number of Hamilton circuits in a complete graph with the given number of vertices.

| | | | |
|------|------|-------------|------|
| a. 6 | b. 7 | c. 11 | d. 4 |
| $5!$ | $6!$ | $10!$ | $3!$ |
| 120 | 720 | $3,628,800$ | 6 |

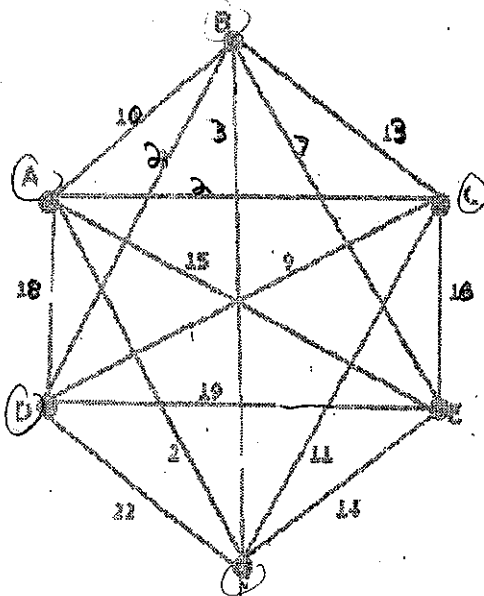
SECTION 15.3 continued

For Exercises 5 - 7, use the graph shown:



5. Find the weight of edge AD. 10
6. Find the total weight of the Hamilton circuit A,C,D,B,A $5 + 15 + 8 + 14 = 42$
7. Find the total weight of the Hamilton circuit B,A,D,C,B $14 + 10 + 15 + 13 = 52$

For Exercises 8 - 14, use the graph shown:



14. A F C D B E A
 $2 + 11 + 9 + 2 + 7 + 15 = 46$

8. Find the weight of edge BF. 3
9. Find the weight of DE. 14
10. Find the total weight of the Hamilton circuit A,C,E,F,D,B,A. $2 + 16 + 14 + 22 + 2 + 10 = 66$
11. Find the total weight of the Hamilton circuit C,B,F,D,A,E,C. $13 + 3 + 22 + 18 + 15 + 11 = 87$
12. Find the total weight of the Hamilton circuit F,A,D,E,C,B,F. $2 + 18 + 19 + 16 + 13 + 3 = 71$
13. Use the Nearest Neighbor Method, with starting vertex E, to find an approximate solution. What is the total weight of the Hamilton circuit?
14. Use the Nearest Neighbor Method, with starting vertex A, to find an approximate solution. What is the total weight of the Hamilton circuit?

13. E B D C A F E
 $7 + 2 + 9 + 2 + 2 + 14 = 36$

14. A C D B F E A
 $2 + 9 + 2 + 3 + 14 + 15 = 45$

Not on test