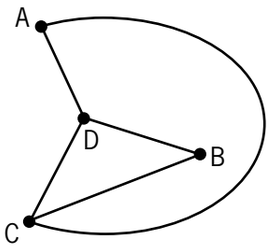
NAME _____ DATE _____

Module 20 Solving Problems Using Probability, Statistics, and Discrete Math
Lesson 4 Solving Discrete Mathematics Problems

additional practice

Use the following graph for Questions 1–3. The graph represents bus routes.



1. Find the degree of the vertices. _____

_____

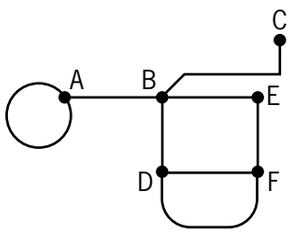
2. Melissa wants to travel each of the routes on the map. Is there a traversable path she could take so that she travels each route exactly once? _____

_____

3. If there is a traversable path, give the path. If not, explain the reason there is not a traversable path. _____

_____

Use the following graph for Questions 4–6. The graph represents the streets in a neighborhood. Harry delivers newspapers throughout this neighborhood on his bicycle. At least one house on each street receives a paper.



4. Vertex A has a "loop." The degree of vertex A is 3. Find the degrees of the remaining vertices. _____

_____

5. Harry needs to bike down each street. Is there a traversable path he could take so that he bicycles each street exactly once? _____

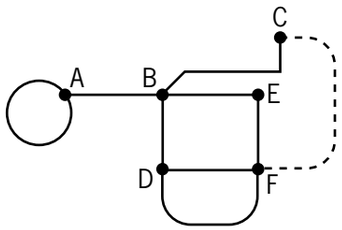
_____

6. If there is a traversable path, give the path. If not, explain the reason there is not a traversable path. _____

_____

_____

Use the following graph for Questions 7 and 8. The town council is proposing to add a new road to the neighborhood as shown with the dotted line.



7. With the new street, does Harry have a traversable path?

_____

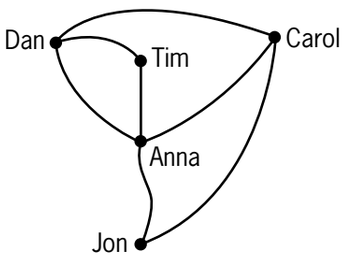
_____

_____

8. If there is a traversable path, give the path. If not, explain the reason there is not a traversable path. _____

_____

Use the following graph for Questions 9–11. The graph represents e-mail messages sent between friends last week.



9. What does the edge between vertex "Anna" and vertex "Tim" represent?

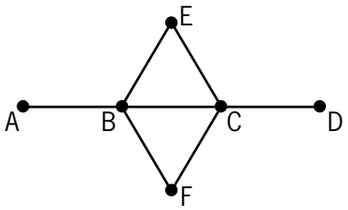
_____

10. Who communicated with the most people via e-mail last week? _____

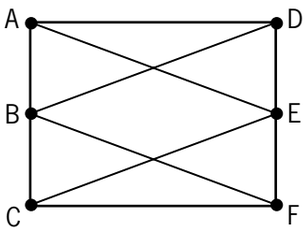
11. Who communicated via e-mail with Jon? _____

For each problem, match each graph with its equivalent graph in the second column and write its corresponding letter as the answer.

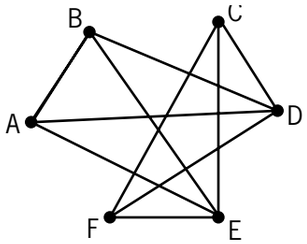
12. _____



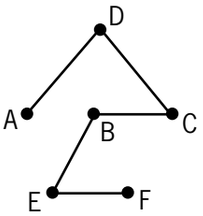
13. _____



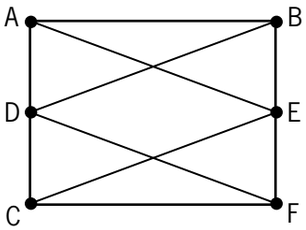
14. _____



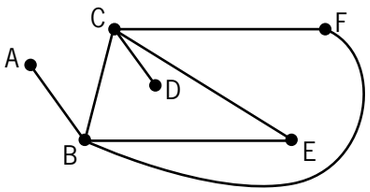
15. _____



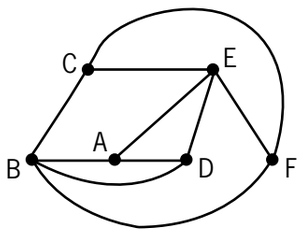
a.



b.



c.



d.