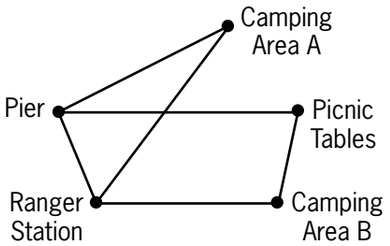
NAME _____ DATE _____

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

independent practice

Use the following graph for Questions 1–4. The graph represents different areas of interest at a campground.



1. Find the degree of each vertex.

_____

_____

2. Find the sum of the degrees of the vertices in the graph. _____

3. How many edges does the graph have? _____

How does the sum of the degrees of the vertices compare with the number of edges of the graph? _____

_____

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

_____

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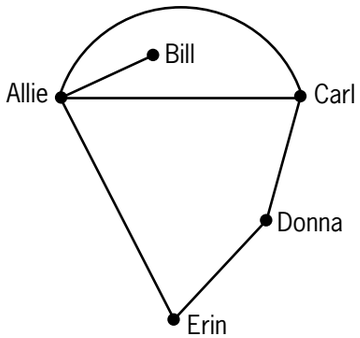
_____

Use the following graph for Problems 5–9. The graph represents phone calls made by a group of people.



5. Bill talked to whom? _____

6. Allie talked to whom? _____

7. Erin threw a party and let people know by calling the people as shown on the graph. Was it possible that all of the people on the graph would find out about the party? Why or why not?

_____

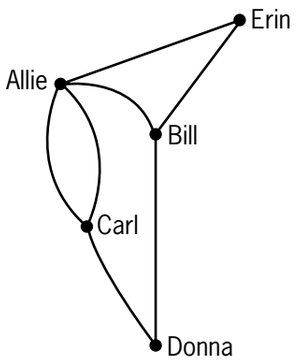
_____

8. Is this graph equivalent to the graph above? Explain why or why not.

_____

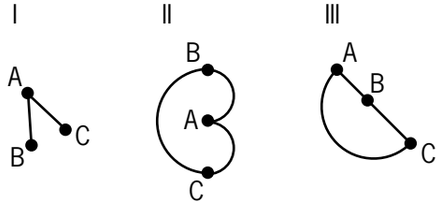
_____

_____

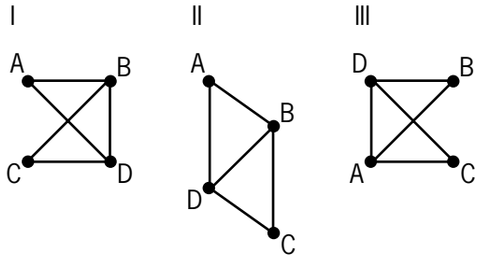


9. Draw a graph which is equivalent to the graph above Problem 5.

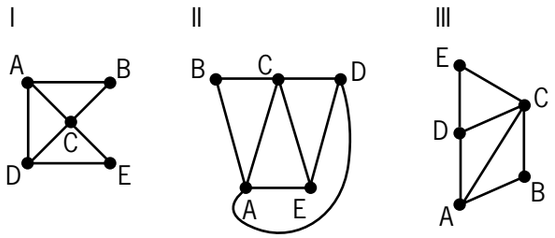
10. Select the graph that is not equivalent to the other two.



11. Select the graph that is not equivalent to the other two.



12. Select the graph that is not equivalent to the other two.



Journal

1. Explain to a friend why graphs that do not look alike can be equivalent graphs.
2. Draw a graph that is not traversable. Explain how you know it is not traversable.
3. Is it possible to have a graph with exactly two vertices that is *not* traversable? Explain the answer.
4. Sam says that you can find the degree of each of the vertices of a graph by dividing the number of edges by the number of degrees. Hanna disagrees. Who is correct? Why?

Cumulative Review

Identify the algebraic property illustrated in each problem.

1. $5 + 6 + (8 + 10) = 5 + 6 + (10 + 8)$

_____

2. $g = g$

_____

3. If $p = r$ and $r = 7$, then $p = 7$.

_____

4. $9(k + m) = 9k + 9m$

_____

Solve each inequality for *b*. The solutions do not need to be graphed.

5. $b + 23 = 5$ _____

6. $\frac{b}{5} < 3$ _____

7. $-2b + 1 > 7$ _____

8. $\frac{b}{-10} \leq \frac{1}{5}$ _____