SHOW ALL WORK TO RECEIVE CREDIT. Work must be clear and easy to follow. All fractions and radicals must be simplified. Each question is worth 1 point.

## Solve.

1) Draw a graph that models the floor plan. Use vertices to represent the rooms and the outside, and edges to represent the doors.
2) $\qquad$


Use the graph below to answer the question.

2) What is the degree of vertex $B$ ?
3) Identify the vertex as odd or even. Vertex D.
2) $\qquad$
3) $\qquad$

Determine whether the given path is an Euler Path, an Euler Circuit, or neither.
4)


F,G,E,D,G,B,C,D,B,A,F

## Answer the question.

5) The layout of a city with land masses and bridges is shown. Use the graph to determine if the city residents would be able to walk across all of the bridges (starting on either bank) without crossing the same bridge twice.


## Use the weighted graph shown to answer the question.


6) Find the total weight of the Hamilton circuit A, B , F, G, D, E, C, A.
7)
6) $\qquad$
7) $\qquad$


Jon is a traveling salesman for a pharmaceutical company. His territory includes 5 cities and he needs to find the least expensive route to the cities and home. Starting at city A, which of the following is the optimal route using the Nearest Neighbor Method?
I. A, E, C, B, D, A
II. A, E, B, D, C, A
III. A, E, D, B, C, A
IV. A, E, D, C, B, A

## Use the complete weighted graph shown to answer the question.


8) Using the Nearest Neighbor Method starting with vertex A, which of the following is an approximate optimal solution?
I. A, B, C, D, A
II. A, C, B, D, A
III. A, D, B, C, A
IV. A, D, C, B, A
8) $\qquad$
9) Using the Cheapest Link, which of the following is an approximate optimal solution?
9)
I. A, B, C, D, A
II. A, C, B, D, A
III. A, D, B, C, A
IV. A, D, C, B, A

Answer Key
Testname: MTH-129 GRAPHS AND CIRCUIT PRACTICE
1)

2) 3
3) odd
4) Euler circuit
5) Yes
6) 110
7) III
8) IV
9) IV

