Vertex-Edge Graph
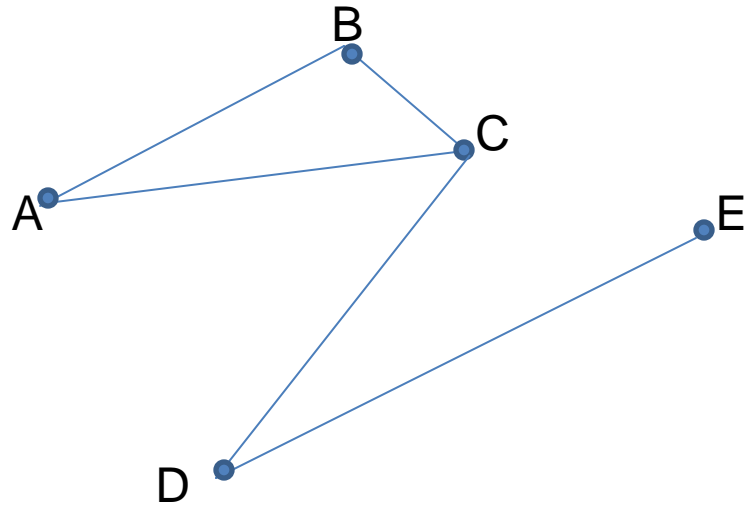
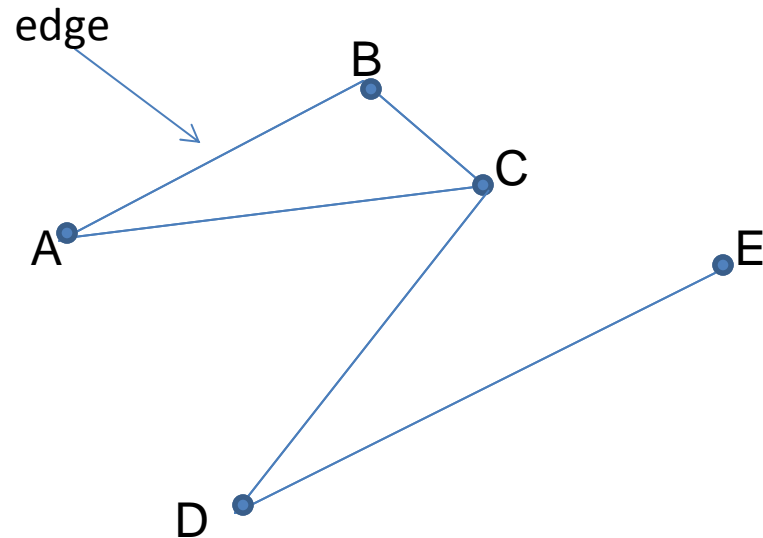http://illuminations.nctm.org/ActivityDetail.aspx?ID=20

Vertex-Edge Graph

- A collection of points and line segments connecting some (possibly empty) subset of the points
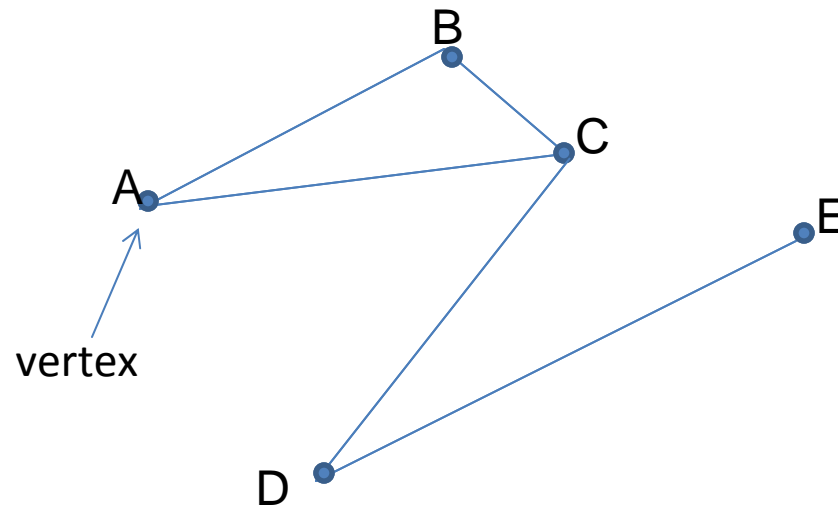
Edge of a Vertex-Edge Graph

- A line segment connecting the vertices of a graph.
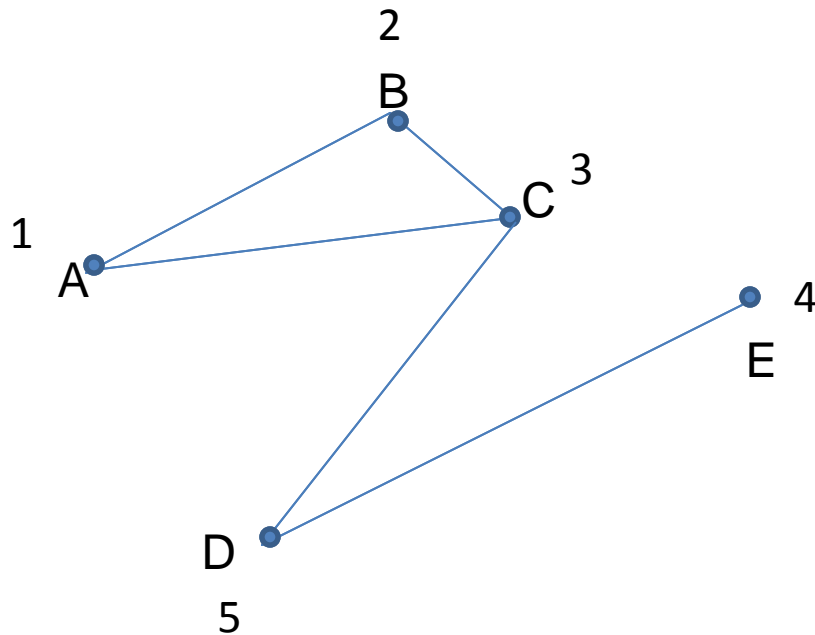
- The edge represents a distance.

edge

Vertex of a Vertex-Edge Graph

- A point that is either the endpoint of an edge or not part of an edge
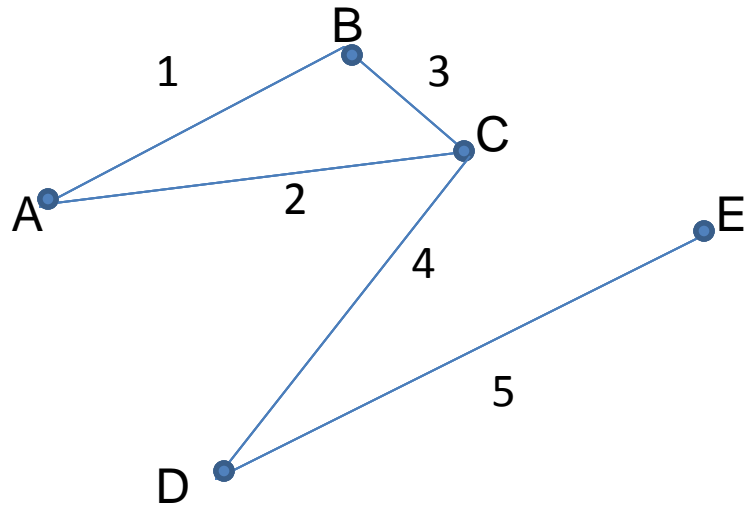
- The vertex represents a place.

Think about it. . .

- How many vertices do you see?

Think about it. . .

- How many edges do you see?

Guided Practice

With your study buddy, complete the exercise below

- *McDougal Littell Georgia High School Mathematics 3*
  - *Page 61 #'s 1-3*

Use of Vertex-Edge Graphs

- To Think Visually
- To Think Spatially
- Real-World Application

Using a Vertex-Edge Graph to Represent a Situation

- Edges represent a relationship or connection
  - Could be a distance, commonality, relationship

- Vertices represent members of the relationship.
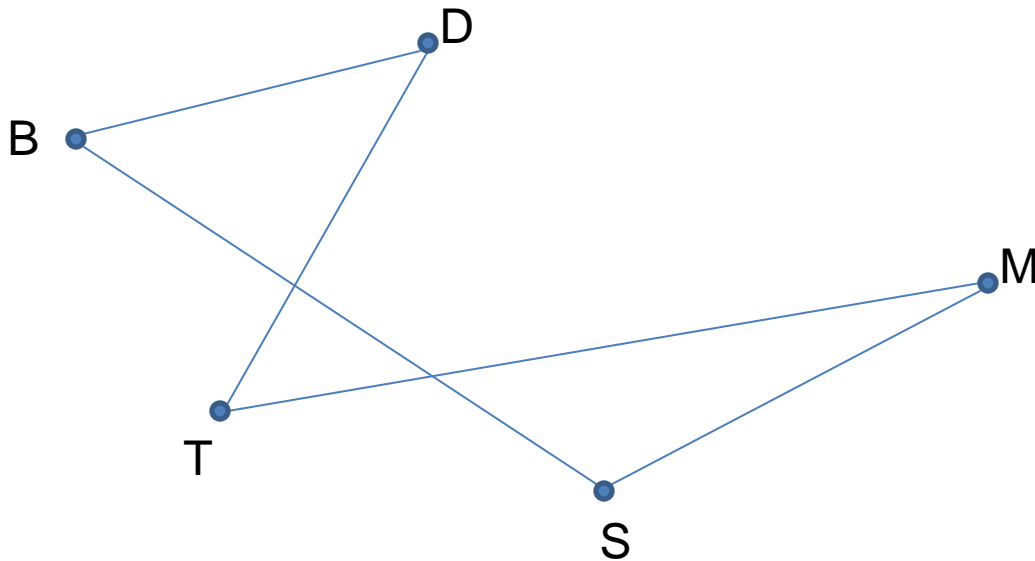 - Could be cities, animals, people, etc.

The vertex edge graph below represents five people from our school: Bob (B), Dustin (D), Mike(M), Sue (S), and Tammy (T)

- An Edge connecting two vertices indicates that those two people have a class together.
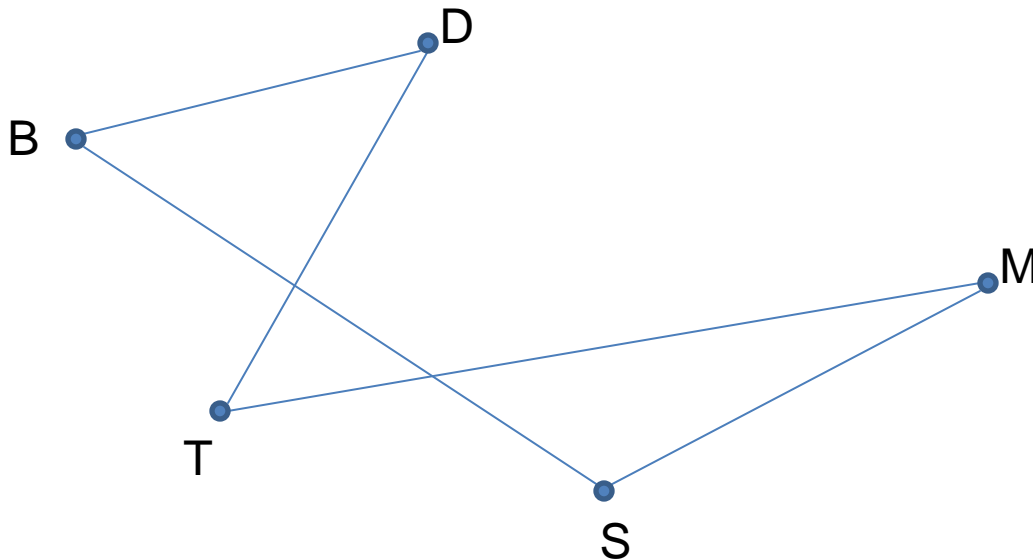
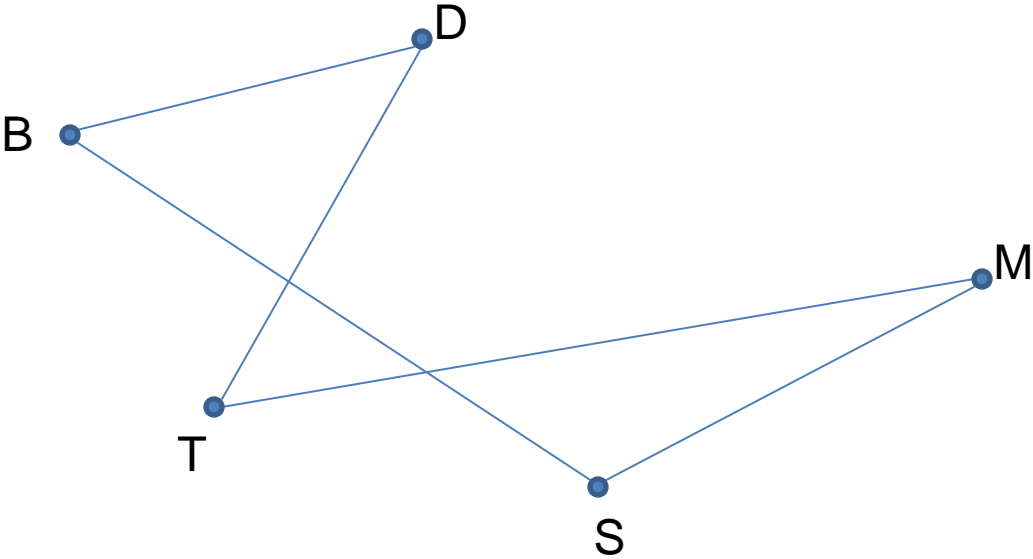# Who has a class with Mike?

Tammy and Sue

Who does not have a class with Bob?

Tammy and Mike
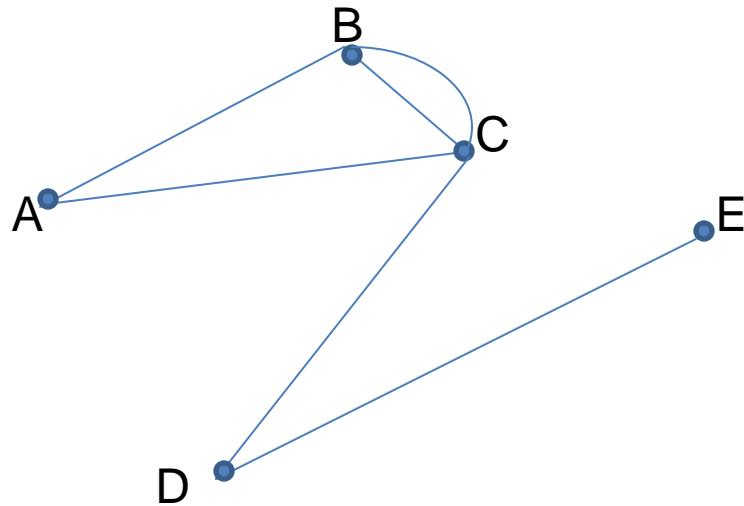
Guided Practice

With your study buddy, complete the exercise below

- *McDougal Littell Georgia High School Mathematics 3*
  - *Page 61 #'s 4-6*

Use a Matrix to Represent a Vertex-Edge Graph

- Step 1-Create a matrix listing all vertices in the row and column

- Step 2-Fill in the matrix listing the number of relationship between the two points.
  - If there are no relationships use "0"

Create a Matrix Using the following Vertex-edge Graph.

Guided Practice

With your study buddy, complete the exercise below

- *McDougal Littell Georgia High School Mathematics 3*
  - *Page 61 #'s 8-9*

Drawing a Vertex-Edge Graph

- Plot the vertices

- Connect vertices that contain the relationship given.

Five students attend the same school. Ann (A) has a class with Carol (C) and Beverly (B). Dekota(D) has a class with Beverly (B). Carol (C) has a class with Beverly (B).

Draw a Vertex-Edge Graph to represent this situation.

Step 1- Plot the vertices

A ●   ● B

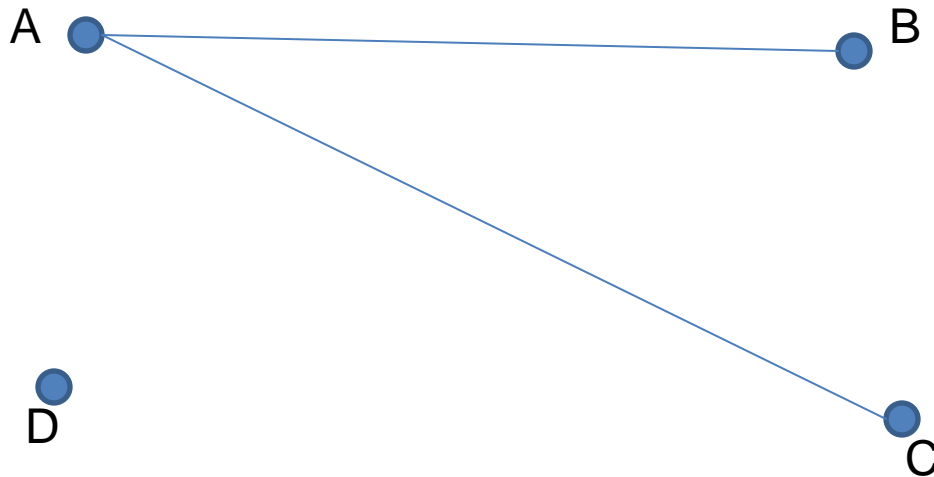   ●
D   ●
                                                            C

Draw a Vertex-Edge Graph to represent this situation.

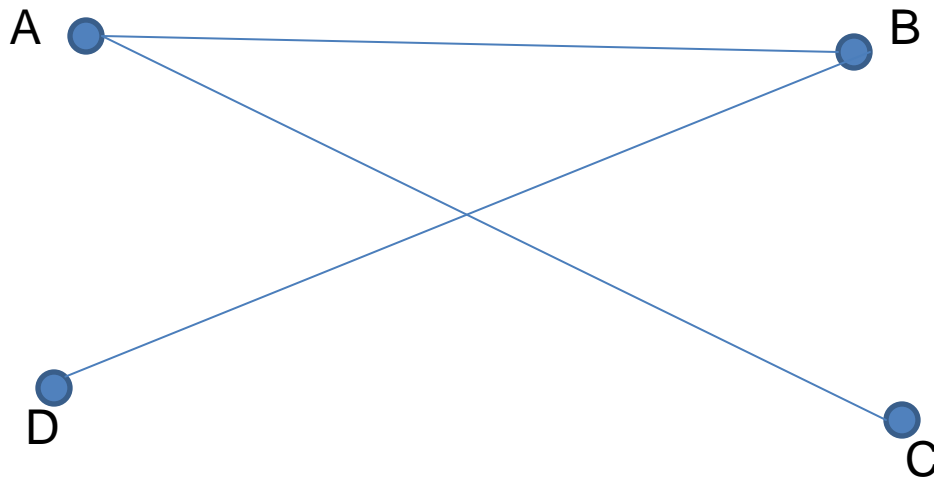Step 2-Connect vertices that contain the relationship given.

Ann (A) has a class with Carol (C) and Beverly (B)

Draw a Vertex-Edge Graph to represent this situation.

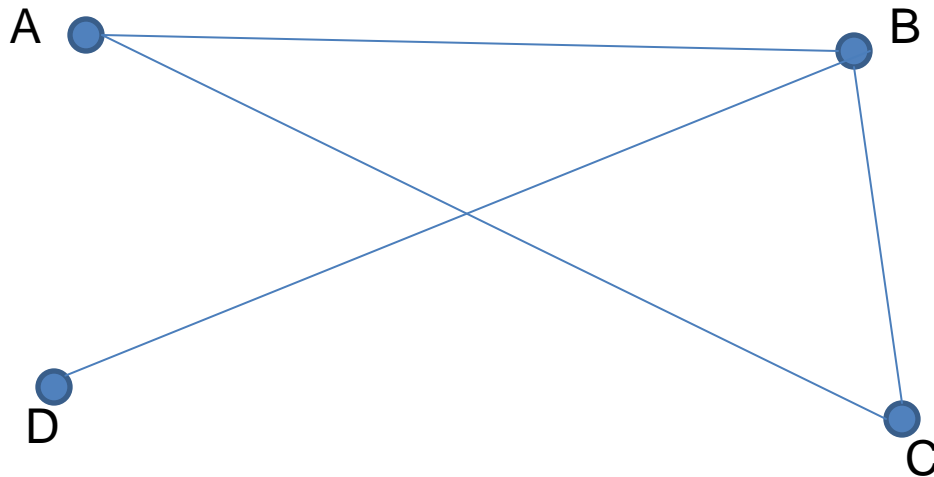Step 2-Connect vertices that contain the relationship given.

Dekota(D) has a class with Beverly (B).

A   B

D   C

Draw a Vertex-Edge Graph to represent this situation.

Step 2-Connect vertices that contain the relationship given.

Carol (C) has a class with Beverly (B).

Guided Practice

With your study buddy, complete the exercise below

- *McDougal Littell Georgia High School Mathematics 3*
  - *Page 61 #'s 10-12*

Summary

3-2-1

In your notes, list

3 vocabulary words you have learned and their relationship to the vertex-edge graph

2 reasons to use a vertex-edge graph

1 real-world example of a vertex-edge graph.

Independent Practice

Homework

- *McDougal Littell Georgia High School Mathematics 3*
  - *Page 62 #'s 1-12*