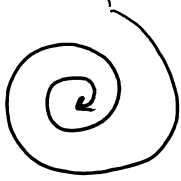


Spiral

Graphs



Counting

Functions

Why

- Recalling material from previous week strengthens neural connections
- Easier to see connections
- At exams, all will be fresh

Graphs

$$G = (V, E)$$

↑
Use parentheses
to denote
ordered set

V = set of vertices

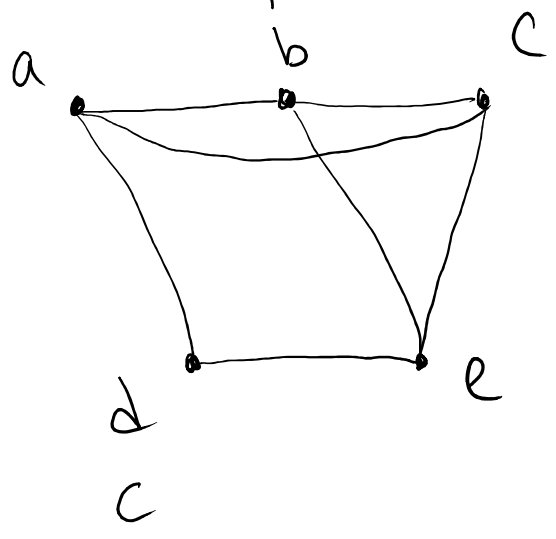
$$\text{ex: } V = \{a, b, c, d, e\}$$

E = set of edges

$$\text{ex: } E = \{ \{a, b\}, \{a, c\}, \{a, d\}, \{b, c\}, \{d, e\}, \{b, e\}, \{c, e\} \}$$

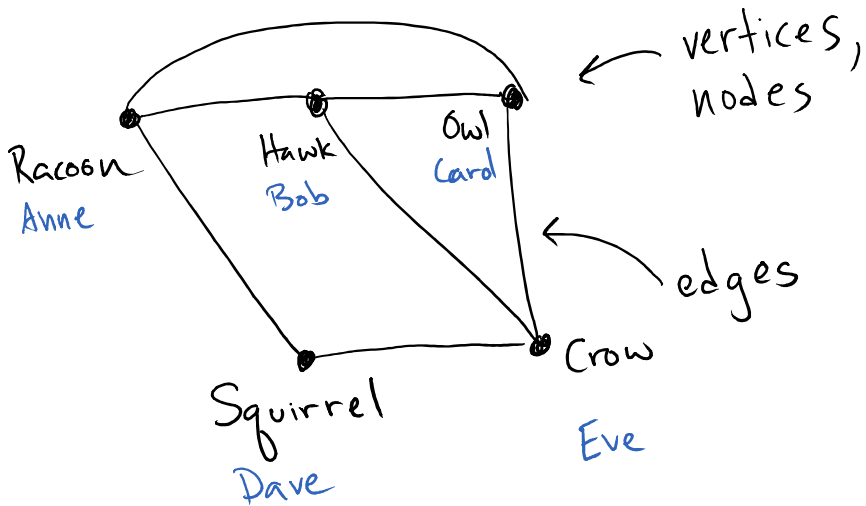
↑
each edge is a set
consisting of 2 vertex
elements.

Draw this Graph:



- a
- b
- c
- d
- e

Graphs:



"Niche overlap graph"



- Connection if share a food source
- Connection if friends on Facebook

Natural questions:

- Which vertex has the largest degree?
 - Degree = # of edges at that vertex
 - Degree of crow = 3
 - Degree of squirrel = 2
- Are two nodes connected? ← map
- What is the shortest path from one node to another?
- What are the fewest edges one would need to remove to separate two nodes? ← cyber attack
rail way attack