1. Quiz: Star Network

A Star Network has a single node in the center that is connected to all the rest of the nodes in the graph directly.

# Write a program that returns the number of edges

# in a star network that has `n` nodes

def star\_network(n):

# return number of edges

if n < 2:

return 0

return n - 1

for x in range(5):

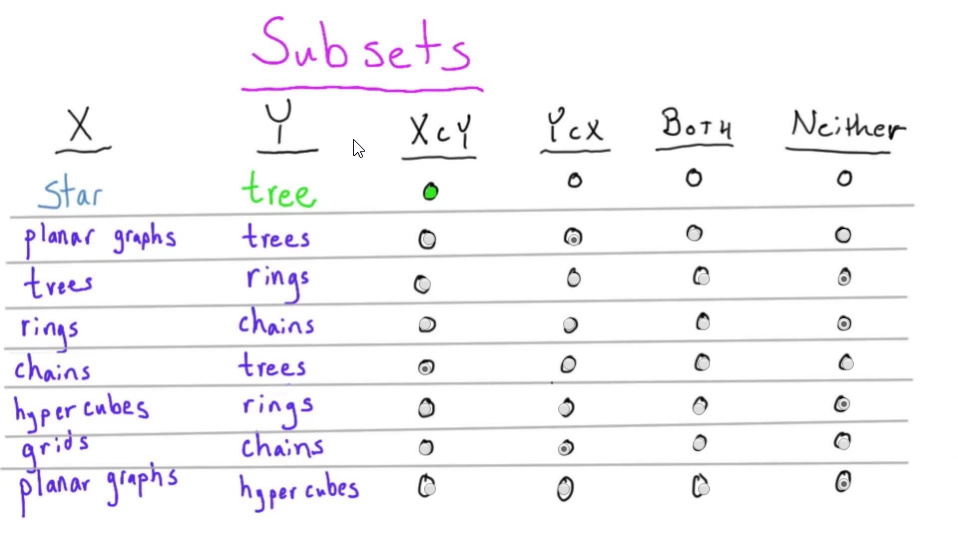
print(x, star\_network(x))

1. Quiz: Recurrence Relation

Start with template. T(1) = 0; T(n) = 2\*T(n/2)

Answer = Theta(n)

1. Quiz: Subsets



1. Quiz: Function Comparison

Big Theta n^2, Big-Oh n^2, Big-Oh n^3

1. Quiz: Planar Graphs

8 nodes, 15 connections, 9 regions.

8-15+9=2

1. Quiz: Combination Locks

Big-Theta(n)

1. Quiz: Make A Combination Lock

def create\_combo\_lock(nodes):

G = {}

make\_link(G, nodes[0], nodes[1])

for x in range(2, len(nodes)):

make\_link(G, nodes[0], nodes[x])

make\_link(G, nodes[x - 1], nodes[x])

return G

1. Quiz: Erdos-Renyi

((n(n-1))/2)\*p

((256(255))/2)\*0.25 = (256(255)/8 = 32\*255 = 160+1600+6400 = 8160

There will be on average 8160 edges in an Erdos-Renyi graph with n = 256 and p = 0.25.