Discrete Mathematics Classroom Activities

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Draw a picture of yourself

Inclusive or exclusive?

- Coffee or tea comes with dinner
- A password must have at least three digits or be at least eight characters long.
- To take discrete mathematics, you must have taken calculus or a course in computer science.
- You can pay using US Dollars or Indian Rupees.

Rewrite in the form "if p then q" in English:

It is necessary to walk 8 miles to get to the top of Long's Peak.

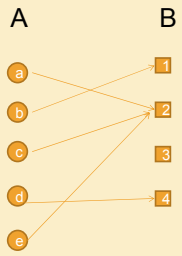
Translate into logic
Do not use uniqueness operator

Everyone has exactly one best friend

Translate into logic

There is some restaurant that serves some food that everyone likes

Identify the domain, codomain, range, image of a, and the preimage of 2



How many zeros are there at the end of 100!

If a club has 25 members how many ways are there to choose the president, secretary, and treasurer, where no person can hold more than one office?

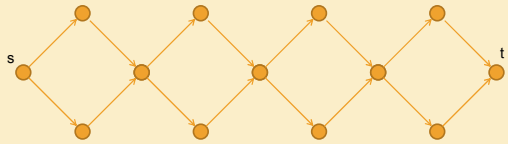
Suppose that E and F are events such that p(E) = 0.7 and p(F) = 0.5. Show that $p(E \cup F) \geq 0.7$ and $P(E \cap F) \geq 0.2$

Is R reflexive, symmetric, antisymmetric, transitive, if

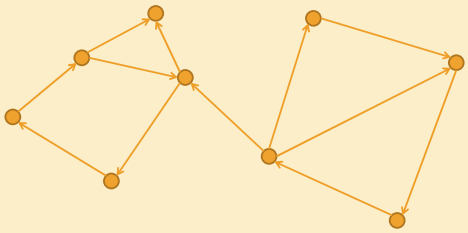
- $R = \{(x,y) \mid xy \geq 1\}$
- $R = \{(x,y) \mid x$ and y are both negative or both nonnegative$\}$
- $R = \{(x,y) \mid x \geq y^2\}$

What is the contrapositive of "if all cycles of G have even length, then G is bipartite"

Prove that a directed graph of n diamonds has 2^n paths from s to t



Identify the strongly connected components of the graph



Draw a graph that has degree sequence 1, 2, 3, 3, 3

Draw a graph that has degree sequence 3, 3, 3, 3, 3

How many edges does $M_{n,m}$ have?

Is the following pair of graphs isomorphic?