Brief Article

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Homework due April 10. Have fun with these problems They are designed to get you used to the concepts.

I List all 11 graphs of order 4. (Draw them)

II. Does there exist a graph or order 5 with degree sequence
a. (4,4,3,2,2)
b. (4,4,4,2,2)
c. (2,2,2,2,2). In fact, how many examples are there with this degree sequence?
Either explain why not or give an example.

III.Use the pigeonhole principal to prove that a graph of order greater than 2 always has two verticies of the same degree

In the next several problems, show how to construct it or give an example which shows you can't. In these problems, a graph of 3 or 4 verticies and a few edges will work Keep your example very simple and it will work.
Definitions of these concepts, pages bottom of 401- top of 402.

IV. Let x and y be verticies of a general graph and suppose there is a closed walk containing both x and y. Must there be a closed trail containing both x and y?

IV. Let x and y be verticies of a general graph and suppose there is a closed trail containing them Must there be a cycle containing them?

V. Prove that if two verticies of a general graph are joined by a walk, then they are joined by a path.