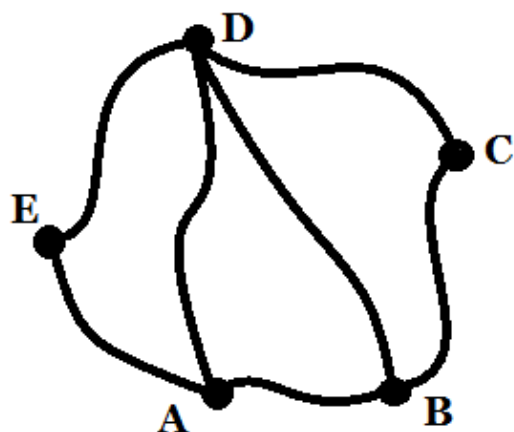


Problem of the Block

Block 5



Count the paths



The network (or graph) above consists of a set of vertices $\{A, B, C, D, E\}$ and edges. Let's consider paths from vertex A to vertex B that use an edge at most one time. You can use a vertex more than once. Three examples are:

- AB
- $ADCB$
- $AEDAB$

Note path $ABDEAB$ would not count here because edge AB is used twice.

Some questions

- How many paths exist from A to B that use an edge at most one time?
- What is the longest path you can make?
- How do answers to the above questions change if we can use each edge at most once in each direction, i.e. going from A to D is not the same as going from D to A ?

Turn in solutions to Dr. Skorczewski in Law 204 or by email at tskorczewski@cornellcollege.edu by February 12. Partial solutions will receive credit (and are encouraged!). You can turn in a solution to just one question and turn in a solution to another question on a different day. The winning solution which earns the bonus points for the yearly competition will be the submission that is the best written, not necessarily the first. Submitting solutions to the Problem of the Block may earn culture points toward the math major. For more information about the Problem of the Block and to print off your own copy visit <http://www.cornellcollege.edu/mathematics/problem-of-the-block/index.shtml>.