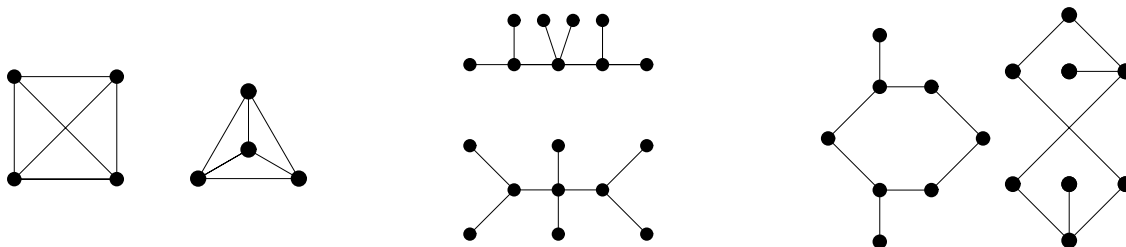


WORKING WITH GRAPHS, II

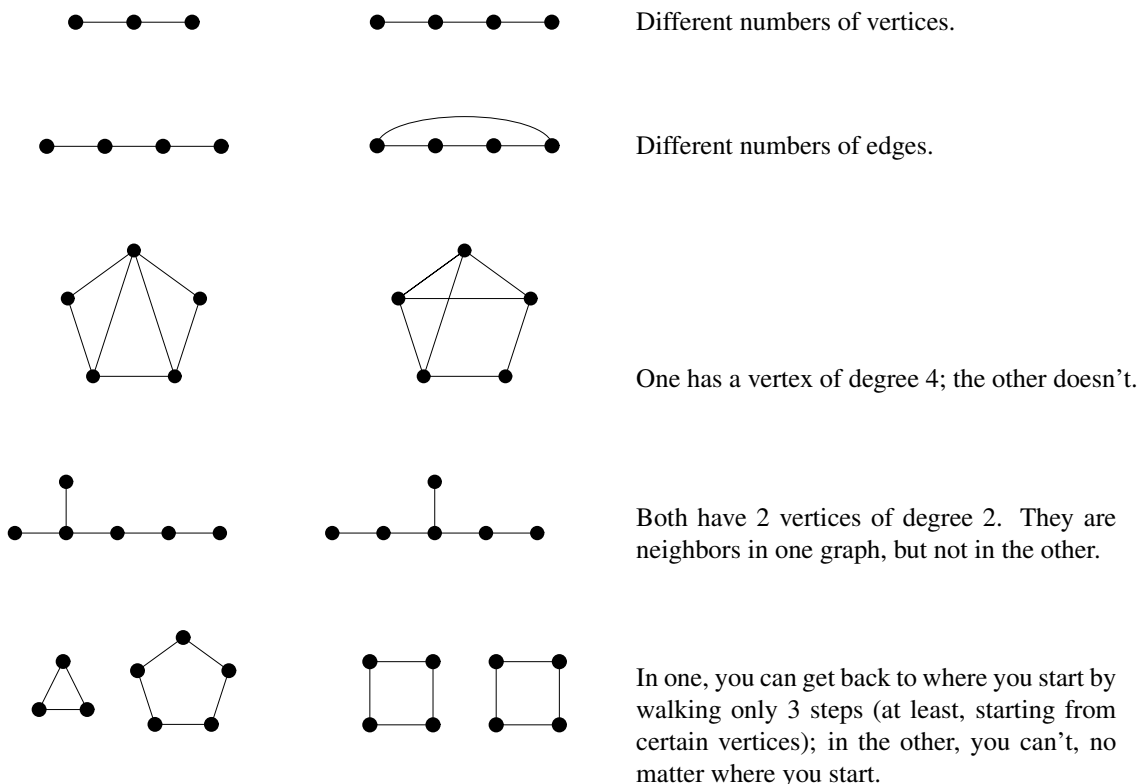
When are two graphs essentially the same?

We call two graphs *isomorphic* (the roots are *iso*, “equal,” and *morph*, “form,” both from ancient Greek) when they have the same structure of connections between vertices. That is, if there’s a way to label the two collections of vertices with the same letters (or numbers, or names) so that the same pairs are connected by edges in the two graphs.

For instance, here are some pairs of isomorphic graphs. Can you fill in the labels?



When two graphs are isomorphic, all you need to do is find the right labellings. How can you tell when two graphs are *not* isomorphic, though? Well, you need to find something *different* about how the connections work. For example:



Now, it's your turn. Working in groups of 3 or 4, decide whether the following pairs of graphs are isomorphic or not! If they are, find labelings. If not, find some features of the networks that convince you that they're not.

