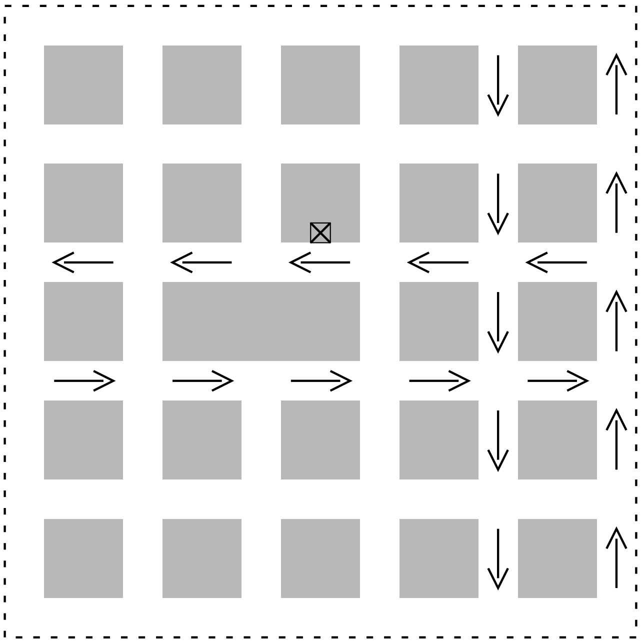
Math 203 - Project 1
Circuits with one-way streets

In this project you will solve a problem involving circuits in a graph, where you will need to deal with the fact that some edges can be traversed only in one direction. The specific problem is:

In an effort to raise enough cash to pay for your Contemporary Mathematics textbook, you have agreed to deliver telephone books in the 5 block square neighborhood of your home, pictured below. Streets that are not marked as one-way are two-way streets. The phone company will pay you \$70 to deliver phonebooks to every home and business along these streets. Your younger brother has agreed (for \$20) to ride along in the back of your truck, and put the phonebooks on the front step of each building, as you drive down each street.

Use the techniques we have developed in class to find the best route to take, starting and ending at your home (marked with an **X**).



If each block is 1/10th of a mile long, and you can manage to drive down each street at one mile per hour (given the time it takes for your brother to hop in and out of the truck), would your time be better spent delivering these phonebooks, or working at the local burger joint for \$6 per hour? If the phone company had done the same calculation as you have, how much would they have offered you, to match the amount of money you could make at the burger joint?

When you write up the results of your investigations, be sure to include:

A clear statement of the problem and description of its translation into the language of graphs;

A clear description of the steps you go through to find your route and reach your conclusions;

A carefully drawn figure showing the route that you would propose to follow to deliver the phonebooks.