Have you ever been in the car driving down a street with stoplights at every intersection…and you feel like you're hitting every red light? This is a situation engineers and city planners try to avoid when programming how traffic lights will change from green to yellow to red. Many factors are involved, including the traffic patterns at certain times of day, the distance between stop lights and the speed limit. This set of problems demonstrates some of the ideas civil engineers consider when planning for traffic patterns.

1.1 The distance from point A to point B is 1320 feet. Traveling at 30 miles per hour, how many seconds will it take a car to go from point A to point B?

1.2 The driver in the red car looks up and sees the light at the intersection up ahead (Pythagoras Place and Archimedes Ave) just turned green. If that light only stays green for 25 seconds, what is the minimum average speed, in miles per hour, she must drive to get from point A to point B while that light is still green?

1.3 The length of time for a yellow light increases as the speed limit increases to ensure cars have enough time to stop or proceed safely through an intersection. Right now, the speed limit on Pythagoras Place is 30 mph and the stop lights have a cycle with a 1.8-second yellow light. Let’s assume the speed limit and the length of time for a yellow light are directly proportional. How many seconds will the yellow light be if the speed limit is increased to 40 mph?

**BAE SYSTEMS ENGINEER SPOTLIGHT:** **SAMUEL BUSHELL**

When I was young...

“I created a map of my town, so I could bike to the comic book store more efficiently.”

Samuel Bushell