The Puzzle Column

We think it might be fun and entertaining to introduce lightweight puzzles to our monthly newsletters to stimulate some curiosity and have our students (and staff!) have a go at solving them. Each newsletter carries a puzzle. We will post the names of the first 10 students who provide correct solutions in the next month's newsletter. Everyone is welcome to contribute new puzzles. Please email Nagendra.gulur@unt.edu for puzzle ideas and solutions to posted puzzles. Please start the subject line of your email with "PUZZLE:".

October Puzzle

Two cars on adjacent lanes of a road are stopped at a red light. When the light turns green, both cars accelerate at the rate of 5 miles per second per second. Car A accelerates up to 40 miles per hour. Car B accelerates up to 60 miles per hour. The next stop light is a mile away. The light alternates between red and green, staying on each color for 20 seconds. As a car approaches the light, one of two things may happen:

1. At 0.1 miles away from the stop light, the light is found to be green and the car continues past the light even if it changes to red.
2. At 0.1 miles away from the stop light, the light is found to be red and the car uniformly decelerates to a complete stop at the light.

For simplicity, any change in the light when the car is less than 0.1 miles away from the stop is ignored.

Is it possible to arrange the timing of the light changes such that the slower moving car (Car A) catches the green light and goes past the faster moving car (Car B)? Offer a short explanation.

NOTE: This situation is quite common. You would have passed a slower moving car, only to catch a red stop light and you stop. Moments later, when the light turns green, you will have to accelerate but the slow moving car does not have to slow down and therefore overtakes you.