**Some Interesting Problems**

1. Base 36 encryption.

In a base 36 number system we will require 36 symbols to encode any number. In this case our 36 symbols will be 0 to 9 and a – z. Your program should allow the user to enter a phrase. The program should then take each “word” in the phrase treating it as a base 36 number, convert it to a base 10 number and build an encrypted string. The program should then take each “word” in the encrypted string and convert it back to the original phrase. You phrase should only contain letters, numbers, and spaces.

2. Closest approach of 2 cars

Car1 traveling north currently 2 miles south of junction at a rate of 30 MPH. Car2 traveling west currently 3 miles east of junction at a rate of 40 MPH. Find the closest distance the two cars approach.

3. Powerball numbers generator

Write a program generates a Powerball number in accordance with the rules of Powerball. The rules require the user to pick 5 unique values from 1 to 69. The user then picks a Powerball with is a number from 1 to 26.