Math 1111 Linear Functions
Car Purchasing

1. Go to [http://www.fueleconomy.gov/feg/savemoney.shtml](http://www.fueleconomy.gov/feg/savemoney.shtml) and read the blurb under “Save Money”.

2. Fill out the “Calculate Fuel Costs & Compare Savings” calculator template. Input the current fuel price from your favorite gas station, the average MPG of two vehicles of interest, your estimated number of driving miles per year, and the number of years you plan to own either car. Calculate your “Annual Fuel Cost” and your “Total Fuel Cost During the Time You [plan to] Own Your Vehicle”.

3. Create a table (like the one from the site) with all of this inputted and calculated information.

4. Now consider the following scenario:

   Car A costs $12,000 and gets 25 MPG. Car B costs $15,000 and gets 32 MPG. Assume that the cost of gas is $4.00 per gallon.

   Create a total cost function for each car, \( C(m)_A \) and \( C(m)_B \), where \( m \) represents the number of miles driven and \( C(m) \) represents the cost of the car plus the cost to fuel the car during the time you plan to own your vehicle.

   Graph each function on graph paper. Label each axis, use an appropriate scale, and use appropriate tick marks. [Remember that the scale for the x-axis does not have to be equivalent to the scale of the y-axis.]

   Estimate the intersecting point of these two functions and interpret the meaning of this point.

5. Create and solve an inequality to find the number of miles you need to drive to make the total cost of Car B less than the total cost of Car B. Answer in a complete sentence.