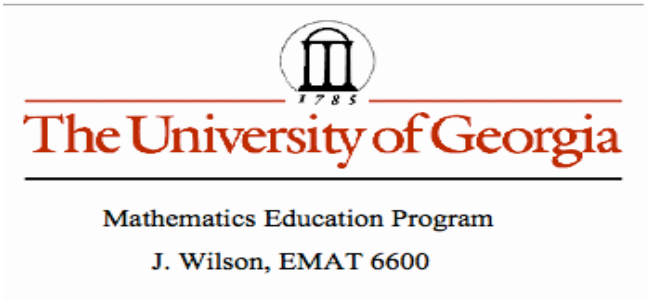

Big Tires

By Leighton McIntyre

Goal: Calculate the speed of car with big tires

Problem

My Ford Bronco was fitted at the factory with 30 inch diameter tires. That means its speedometer is calibrated for 30 inch diameter tires. I "enhanced" the vehicle with All Terrain tires that have a 31 inch diameter. How will this change the speedometer readings? Specifically, assuming the speedometer was accurate in the first place, what should I make the speedometer read as I drive with my 31 inch tires so that the actual speed is 55 mph?

Forego the discussion of whether it is safe to drive a Bronco that fast . . .

One would expect some use of ratios here . . .

Solution

The first part of the information in tabular form would look like this:

	TIRE SIZE (inches)	SPEED
	30	55
	31	x

Setting this up in a ratio and proportion form would be:

$$\frac{30}{31} = \frac{55}{x}$$

30x = 31*55

30x = 1705

x = 56.83

Thus if you drive at 55 mph on the 30 inch tires, that is equivalent to driving 56.83 mph on the 31 inch tires.

Next we calculate what the equivalent of driving 55 mph on the 31 inch tires would be for driving on the 30 inch tires. The following table shows the information for this second part:

TIRE SIZE (inches)	SPEED (miles per hour)
30	y
31	55

Again setting up this information as proportions gives:

Setting this up in a ratio and proportion form would be:

$$\frac{30}{31} = \frac{y}{55}$$

31y = 30*55

31y = 1650

y = 53.22

Thus if you drive at 55 mph on the 31 inch tires, that is equivalent to driving 53.22 mph on the 30 inch tires.