

Viewpoints

Do your math

It is back to school season. In a few weeks, classes will start. During the first week of classes, hundreds of Utah students in middle school and high school will declare: "I hate math." Regrettably, many of their parents will agree with them. Countless parents will say: "I always hated math, and I never used it after I graduated."

I don't doubt that many people avoid math. However, I think that is their loss. I have always found math to be useful. Let's consider a simple example from the current news.

Chevrolet recently announced that a new car named the Volt would be released in 2010. Using a lithium-ion battery in conjunction with a gasoline-powered engine, General Motors claims the Volt can achieve 200 miles per gallon (mpg). Such a vehicle would seem to be one answer to green house emissions and the dependency upon foreign oil.

I wondered if the country would be better off trying to get drivers into ultra-high-mileage vehicles instead of trying to get consumers to trade in old clunkers for slightly more efficient automobiles. Given the issues surrounding the government's "Cash for Clunkers" program, this would seem to be an especially relevant question. I decided to use some simple math, and I was somewhat surprised by the answer.

Suppose two consumers are getting ready to purchase new cars. Joe presently drives a Prius, and the car averages 40 mpg. Mary drives a 20-year-old Ford truck which gets 12 mpg. For comparison purposes, suppose that both Joe and Mary drive 12,000 miles per year, which is the national average.

Mary needs a truck for her job, so she will replace her old truck with different truck—a new Ford Ranger which will get 22 mpg. Suppose that Joe is able to get his hands on one of the new Chevy Volts, and also suppose he is successful in getting 200 mpg from the new car. Which consumer did the most to reduce gasoline consumption and their carbon footprint?

Clearly, Joe will use less gasoline than Mary, both before and after the new car

purchases. By doing so, he will leave a much smaller carbon footprint than Mary. However, decisions are made at the margin. The question is: Which purchase decision resulted in the greatest reduction in gasoline consumption?

At 12 mpg, Mary's old truck burned 1,000 gallons of gas to travel 12,000 miles. Her new Ford Ranger, which gets 24 mpg, will only use 500 gallons of gas to go the same distance. Mary will save 500 gallons of gas each year.

To travel the same 12,000 miles, Joe's 40 mpg Prius would use 300 gallons of gas. If the Volt does, indeed, get 200 mpg, Joe can travel 12,000 miles on 60 gallons of gas. Joe's new car will save 240 gallons of gas compared to his Prius.

Mary's purchase will save 500 gallons of gas while Joe's will save 240 gallons annually. Even though Mary only increased her fuel efficiency by 10 mpg and Joe increased his mileage by 160 mpg, Mary saved more than twice as much gas as Joe.

There are no tricks in these calculations. Joe and Mary could both double their annual mileage or cut their driving in half. Mary's purchase would still save more gas than Joe's. Mary saves more gas because her old car was very inefficient, and she used more gas than Joe—much more.

Did I know the answer to this question before I did the calculations? No. I actually thought the purchase of the 200 mpg car might conserve more energy. However, I was curious enough to do some simple arithmetic. It didn't involve anything more complex than subtraction and division.

The country would be better off if politicians and policy makers used math a little more frequently.

If they did, politicians might enact better informed policies and the nation's budget situation might be a little rosier. The nation would also benefit if parents told their children to study math.

Someday, these children will be making important decisions and some knowledge of math will be useful.

Top of Utah Voices



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■ Commentary