Math 101

Group Work on Systems of Equations: Which Honda Should You Buy?

You are planning to purchase a brand new Honda Civic. You are trying to decide between the Ex model and the electric hybrid model. According to your research the hybrid model will cost $20,800 compared with $18,500 for the Ex. However the overall gas mileage for the hybrid is approximately 48 m.p.g. compared to approximately 28 m.p.g. for the Ex (mileage varies depending on driving conditions).

1. Organize the above information in the following table. Assume that gasoline is $2.00 per gallon when calculating the cost of gas per mile for each car.

Car	Purchase Price	Miles Per Gallon	Cost Gas / Mile
Honda Ex			
Honda Hybrid			

2. What are the annual fuel costs for each of the models if you drive 10,000 miles per year?

Honda Ex: _____

Honda Hybrid: _____

3. a) What is the total cost (purchase price plus fuel cost) to operate each model for one year? For five years?

	One year cost	Five year cost
Honda Ex:	_____	_____
Honda Hybrid:	_____	_____

b) Based on your calculations in this exercise, which of the two models seems to be a better deal?

4. For each model, write an equation expressing the relationship between the total cost, y, (purchase price plus fuel cost) to operate the car and the number of years, x, you own it.

5. Solve the system of equations in question 4 using simple substitution.

6. Graph the lines represented by the system of equations in question 4 and plot the solution. How does this solution compare with your solution from question 5?

7. If you are like me, and like to keep your cars for at least ten years, which of the two Honda models would be a better deal for you? Explain how the graphs from qestion 6 affected your answer. Would your answer be the same if you only planned to keep the car for six years? Why?