



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Shalin N. Shah	Project Number J1832
Project Title Regular - Super - Supreme	
Objectives/Goals My goal was to find out: Does higher octane rating of unleaded gasoline provide better milage for a car, and is it worth spending more money on it if you're seking better milage?	
Abstract Methods/Materials The materials needed for my project were fuel from two different gas stations, two cars (suv, sedan); paper, pencil and a calculator. Fill up the tank of the 1st car at gas station A with 87 octane gasoline and record odometer reading as the begining odometer. next time fill up the tank and record odometer reading as ending odometer. Find the difference between the begining and ending odometer and record it as the miles. Also, record how many gallons you fill up, the price per gallon and the total price you pay. Next, divide the miles by the gallons filled to get the mileage and record it as the average miles per gallon. Follow these steps two more times using the same octane rating to conform the data. Repeat the same steps for 89 and 91 octane rating at the same gas station. Then, repeat all of the previous steps at gas station B with the same car. Follow the entire procedure again, but this time using the second car, remebering to do all three octanes three times at both gas stations.	
Results For the SUV at gas station A, I got the average of 13.8 miles per gallon on 87 octane, 13.9 miles per gallon on 89 octane, and 13.9 miles per gallon on 91 octane. At gas station B, I got the average of 14.8 miles per gallon on 87 octane, 14.4 miles per gallon on 89 octane, and 14.8 miles per gallon on 91 octane. For the sedan at gas station A, I got the average of 22.1 miles per gallon on 87 octane, 22.1 miles per gallon on 89 octane, and 22.2 miles per gallon on 91 octane. At gas station B, I got the average of 24.1 miles per gallon on 87 octane, 24.2 miles per gallon on 89 octane, and 24.2 miles per gallon on 91 octane.	
Conclusions/Discussion The first part of my hypothesis was incorrect. Using a higher octane of unleaded gasoline will not provide better milage for a car, and that's because it refers to how much energy it takes to ignite the gas, rather than how much energy the gas puts out. In other words, the octane rating determines the resist to engine knock. Also, because the higher octane does not provide better milage, it wouldn't be worth it if you are seeking better milage. An essential fact I learned from doing this project was that it matters more of where you get your gasoline rather than what octane used.	
Summary Statement My project is mainly about finding if the higher octane of unleaded gasoline gives better mileage to a car.	
Help Received Parents drove car, & took me along to the gas station needed & used octane needed next for the project.	