NAME/TEAM: _____

Catalytic Converter Postlab

1) Please summarize the results of your NO_x sampling experiments in the following table

Car #1 make: _____ Car model: _____ Year: _____

Car #2 make: _____ Car model: _____ Year: _____

NO_x mixing ratio in car exhaust (in ppmv)

	Car #1	**Car #2**
Cold start exhaust:		
Warm exhaust:		

2) What is the apparent efficiency of the catalytic converter in removing NO_x from the engine exhaust? One way to answer this is to calculate the percent reduction of NO_x in the exhaust stream between samples collected before and after the catalytic converter has warmed up.

3) Provide an estimate of the amount of NO_x (in grams) emitted by your car as you drove to UCI to attend the workshop. To do this, assume that the exhaust flows out of the tailpipe at a rate of 50 liters per second at all times regardless of the car's speed. If 4 million people commute to work in Los Angeles County daily and each person spends one hour per day driving to and from work, how much NO_x would be emitted by these cars in one day? (Assume the temperature is 25 ^oC). Passenger cars are not the only emitters of NO_x. Can you name other sources of NO_x to the atmosphere and identify most important emitters?

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4) Do catalytic converters last for the lifetime of the car? If not, why (since catalysts are not used up in the course of catalyzing a chemical reaction).

5) Have you ever had to replace a catalytic converter? How much did this cost? Why do you think it was so expensive to replace (disregarding labor!)