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Exercise for January 28, 2006

**November 1981 Course 110 Examination, Problem No. 39**

An automobile manufacturing company produces three different car models. The table below presents sales data and average gasoline consumption data for these three models. What is the mean miles per gallon (mpg) for the cars sold by the company, assuming each car uses the same number of gallons of gasoline?

Model	Number of cars sold	mpg
I	2000	15
II	4000	20
III	4000	25

- A. 25      B. 21      C. 20      D. 15      E. Cannot be determined from the given information

Solution.

Assume now that each car uses  $N$  gallons of gasoline. A Model I will travel  $15N$  miles, a Model II will travel  $20N$  miles, and a Model III will travel  $25N$  miles with those  $N$  gallons. The total number of miles traveled by all cars sold will be

$$2000 \cdot 15N + 4000 \cdot 20N + 4000 \cdot 25N = 210,000N.$$

The total number of cars is 10,000, so all cars will use  $10,000N$  gallons of gasoline. The average number of mpg is

$$\frac{210,000N}{10,000N} = 21.$$

Answer B.

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