Estimating Products

A bus service drives passengers between Milwaukee and Chicago every day. They travel from city to city a total of 8 times each day. The distance between the two cities is 89 mi. In the month of February, there are 28 days. The company's budget allows for 28,000 total miles for February. Is 28,000 mi a reasonable budget mileage amount?

One Way to Estimate

Estimate 28 × 8 × 89.

Use rounding.

You can round 89 to 100 and 8 to 10. Then multiply.

28 × 10 × 100 = 280 × 100 = 28,000

Because this is an overestimate, there are enough miles.

Another Way to Estimate

Estimate 28 × 8 × 89.

Use compatible numbers.

Replace 28 with 30, 89 with 90, and 8 with 10. 30, 90, and 10 are compatible numbers because they are close to the actual numbers in the problem and they are easier to multiply. Now the problem becomes 30 × 90 × 10.

30 × 90 = 2,700	Multiply 3 × 9, then place two zeros after the product.
2,700 × 10 = 27,000	Multiply 27 × 1 using the Identity Property of Multiplication, then place three zeros after the product.

In the estimate, we used numbers greater than the original numbers, so the answer is an overestimate.

28,000 total miles is a reasonable budget amount.

Estimate each product. Use rounding or compatible numbers.

1. 42 × 5 × 90 = _____

2. 27 × 98 × 4 = _____

Mrs. Carter ordered new supplies for Memorial Hospital.

3. About how much will it cost to purchase 48 electronic thermometers?

_____

4. About how much will it cost to purchase 96 pillows?

_____

Supplies	
Electronic thermometers	$19 each
Pulse monitors	$189 each
Pillows	$17 each
Telephones	$19 each