

NAME _____

Module 2 Whole Number Operations
Lesson 3 Large Numbers: Multiplication

Challenge Problems

2.3

Set 1

1 Compare the Partial Products Method of Multiplication to the Standard Method of Multiplication. Explain why both methods get the same results.

2 Use only 4, 6, 8, and 9. Make the largest product possible.

3 Use only 4, 6, 8, and 9. Make the smallest product possible.

Possible answers:

1.

With the Partial Products Method, each digit in the multiplicand is multiplied by each digit in the multiplier. The products are recorded, and the partial products are added. The Standard Method is really doing the same thing in a slightly different way. Each digit in one factor is multiplied by each digit in the other factor, and the partial products are added, but the partial products are not broken down into ones, tens, hundreds, and so on. In the example shown, 68 is 60 and eight, whether it is recorded as one number (68) or as two numbers (60 and eight). Either way, it is representation of six tens and eight ones. So both methods do the same thing. The difference is in how the results are recorded and when the partial products are added.

Partial Products	Standard
34	34
<u>× 12</u>	<u>× 12</u>
300	68
40	+ 340
60	<u>408</u>
+ 8	
<u>408</u>	

2.

$$\begin{array}{r} 864 \\ \times 9 \\ \hline 7,776 \end{array}$$

3.

$$\begin{array}{r} 689 \\ \times 4 \\ \hline 2,756 \end{array}$$