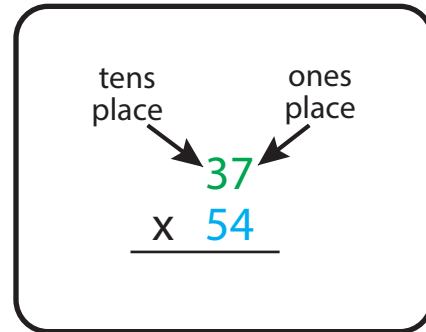Name: _____   Date: _____

An Introduction to Partial Products

Partial products is a way to multiply with a focus on place value. The numbers in each factor are multiplied with their full value to find **partial products**, which are *parts* of the complete answer.

```
   tens              ones
   place             place
              ↘ 37 ↙
          x   54
```

First the ones place is multiplied by each of the numbers in the second factor. Then, the tens place is multiplied by each number.

The entire value of each place value is written out for each step of the problem.

Finally, the partial products are added together to find the **product** (answer).

```
        37
    x   54        partial        A three in
   ─────────      product        the tens
        28  ← (4 x 7)            place has a
       120    (4 x 30)          value of 30
       350    (50 x 7)
   + 1,500    (50 x 30)
   ─────────
     1,998  ← product
```

Why do we use this strategy?

Using partial products strengthens our foundational understanding of multiplication and place value, supports flexible thinking and number sense, and builds a conceptual understanding of standard algorithm.

Name: _____   Date: _____

An Introduction to Partial Products

Try it! Solve each problem using partial products.

Example

```
      25
  x   42
      10    (2 x 5)
      40    (2 x 20)
     200    (40 x 5)
  +  800    (40 x 20)
   1,050
```

```
      63
  x   18
     ¹24    (8 x 3)
     480    (8 x 60)
      30    (10 x 3)
  + ¹600    (10 x 60)
    1134
```

```
      57
  x   21
       7    (1 x 7)
      50    (1 x 50)
     140    (20 x 7)
  + 1,000   (20 x 50)
    1,197
```

```
      39
  x   13
      27    (3 x 9)
      90    (3 x 30)
      90    (10 x 9)
  + ²300    (10 x 30)
     507
```

Name: _____   Date: _____

Answers

An Introduction to Partial Products

Let's Review! Fill in the blank with the correct answer.

1. The answer to a multiplication problem is called the _____product_____ .

2. A portion or part of an answer to a multiplication problem is called a _____partial product_____ .

3. In the number 267, what is the value of the digit in the tens place? _____60_____

4. In the number 719, what is the value of the digit in the ones place? _____9_____

5. What is one reason to use this strategy for multiplication? _____answers will vary_____

   _____

6. Peter tried using partial products to solve the problem 23 x 17, but he made a mistake.

```
        23
     x  17
   ─────────
        21    (7 x 3)
        14    (7 x 2)
         3    (1 x 3)
   +     2    (1 x 2)
   ─────────
        40
```

What would you tell Peter to help him correct his mistake?

Possible Answer: Peter didn't write the value of each place value. Instead of 2, he should multiply by 20; instead of 1, he should multiply by 10.

_____

_____

_____

_____