

## Division Algorithms

### Partial-Quotients Method:

(dividend) (divisor) (quotient)  
**1,248 ÷ 44 =**

1. In the partial-quotients method, it may take several steps to find the quotient. Begin by setting up the numbers in a chart that looks like a seven. Set up the numbers as shown.
2. Find a large/easy number to multiply by your divisor (begin with multiples of 10). Put the answer below your dividend and subtract the two numbers.
3. Repeat step #2 until you can't divide any more. Don't forget to **line up the place values** in the right column.
4. When you can't divide any further, add up the numbers and that will be your whole number in your answer. The number in the left column is your remainder.

$  \begin{array}{r}  0 \text{ } 12 \\  \overline{1 \cancel{2} / 48} \\  - 440 \\  \hline  7 \text{ } 10 \\  \cancel{8} \cancel{0} 8 \\  - 440 \\  \hline  2 \text{ } 16 \\  \cancel{3} \cancel{6} 8 \\  - 88 \\  \hline  1 \text{ } 17 \\  \cancel{2} \cancel{8} 0 \\  - 88 \\  \hline  8 \text{ } 12 \\  \cancel{1} \cancel{9} \cancel{2} \\  - 88 \\  \hline  9 \text{ } 14 \\  \cancel{0} \cancel{1} \cancel{0} 4 \\  - 88 \\  \hline  16  \end{array}  $	$  \begin{array}{r}  10 \\  10 \\  2 \\  2 \\  2 \\  2 \\  28 \text{ (answer)}  \end{array}  $
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(what you multiplied the divisor by)

(44 \* 20 would take less steps - "Think" 44 \* 2 = 88, so 44 \* 20 = 880)

(44 \* a higher number would take you less steps)

**1,248 ÷ 44 = 28 r. 16 OR 1,248 ÷ 44 = 28 16/44** (For a fraction, put your remainder over the divisor)

### Dividing with decimals:

**124.8 ÷ 44 =**

You can double check the place value with your **magnitude estimate** (round the numbers in your problem to their highest place value and then multiply). If you have a remainder, use it to decide whether or not to round up or stay the same. If it's more than half of your divisor, round up. If it's less than half of your divisor, stay the same.

**120 ÷ 40 = 3**

**124.8 ÷ 44 = 2.8** (stays the same, because 16 is less than half of the divisor)

Make sure you have as many decimal places to the right as you do in your problem.

**124.8 ÷ 44 = 2.8**  
 (1 decimal place) + (0 decimal places) = 1 decimal place

