Long Division

Below is the process written out in full.

You will often see other versions, which are generally just a shortened version of the process below.

You can also see this done in <u>Long Division Animation</u>.

Let's see how it is done with:

$$425 \div 25$$

dividend   divisor

- the number to be divided into is known as the dividend
- The number which divides the other number is known as the divisor

And here we go:

$25\overline{)425}$	$4 \div 25 = 0$ remainder 4	The first digit of the dividend (4) is divided by the divisor.
$25\overline{)425}$ with 0 on top		The whole number result is placed at the top. Any remainders are ignored at this point.
$25\overline{)425}$ with 0 on top and 0 below	$25 \times 0 = 0$	The answer from the first operation is **multiplied**by the divisor. The result is placed under the number divided into.
$25\overline{)425}$ with 0 on top, 0 below, remainder 4	$4 - 0 = 4$	Now we **subtract** the bottom number from the top number.

| ```
    0
25⟌425
  0↓
  42
``` | | Bring down the next digit of the dividend. |
| ```
    0
25⟌425
  0↓
  42
``` | $42 \div 25 = 1$ remainder 17 | **Divide** this number by the divisor. |
| ```
   01
25⟌425
  0↓
  42
``` | | The whole number result is placed at the top. Any remainders are ignored at this point. |
| ```
   01
25⟌425
  0↓
  42
  25
``` | $25 \times 1 = 25$ | The answer from the above operation is **multiplied** by the divisor. The result is placed under the last number divided into. |
| ```
   01
25⟌425
  0↓
  42
  25
  17
``` | $42 - 25 = 17$ | Now we **subtract** the bottom number from the top number. |
| ```
   01
25⟌425
  0↓
  42
  25↓
  175
``` | | Bring down the next digit of the dividend. |

01 25 ⟌ 425 0↓ 42 25↓ 175	175 ÷ 25 = 7 remainder 0	**Divide** this number by the divisor.
017 25 ⟌ 425 0↓ 42 25↓ 175		The whole number result is placed at the top. Any remainders are ignored at this point.
017 25 ⟌ 425 0↓ 42 25↓ 175 175	25 × 7 = 175	The answer from the above operation is **multiplied** by the divisor. The result is placed under the number divided into.
017 25 ⟌ 425 0↓ 42 25↓ 175 175 000	175 − 175 = 0	Now we **subtract** the bottom number from the top number.
		There are no more digits to bring down. The answer must be 17