

Long Division

Division: First digit of the dividend divided by the divisor, this gives us the quotient
Multiplication: Multiply quotient by divisor to gives us the product
Subtraction: Subtract product from **working dividend**
Next digit: Bring down the next digit and combine with the remainder, this is our **working dividend**

- 1. Is 21 greater than 1? Yes. So we cannot divide and move on.
- 2. Multiply quotient (21) by the divisor. $21 \times 0 = 0$. 0 is our product
- 3. Now we perform subtraction. $1 - 0 = 1$, so 1 is our remainder.
- 4. Bring down the next digit to form the working dividend

$$\begin{array}{r} 0 \text{ } ______ \\ 21 \overline{)160.65} \\ \underline{0} \\ 16 \end{array}$$

- 1. Is 21 greater than 16? Yes. So we put a 0 on the result and move on.
- 2. $21 \times \text{result} = 0$
- 3. $16 - 0 = 16$
- 4. Bring down the next number to form a new working dividend

$$\begin{array}{r} 00 \text{ } ______ \\ 21 \overline{)160.65} \\ \underline{0} \\ 16 \\ \underline{0} \\ 160 \end{array}$$

- 1. Is 21 greater than 160? Nope. It fits in around 7 times so 7 is our new result
- 2. $21 \times 7 = 147$
- 3. $160 - 147 = 13$, this is our remainder
- 4. Bring down the next number!

$$\begin{array}{r} 007 \text{ } ______ \\ 21 \overline{)160.65} \\ \underline{0} \\ 16 \\ \underline{0} \\ 160 \\ \underline{147} \\ 136 \end{array}$$

- 1. Is 21 greater than 136. Nope. It is about 6 times.
- 2. $21 \times 6 = 126$
- 3. $136 - 126 = 10$
- 4. Bring down the next!

$$\begin{array}{r} 007.6 \text{ } ______ \\ 21 \overline{)160.65} \\ \underline{0} \end{array}$$

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16
0
-----
160
147
-----
136
126
-----
105

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1. Is 21 greater than 105. Nope. It goes in 5 times.
2. $21 \times 5 = 105$
3. $105 - 105 = 0$
4. We are at 0, so we are done!

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007.65
21 | 160.65
0
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16
0
-----
160
147
-----
136
126
-----
105

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If we had a remainder, but no digits, we keep bringing down imaginary zeros until we get 0. Otherwise, that is a

