

Long Division

By Dr. Calhoun

Long Division

Helpful reminder

The steps of long division are easy if you remember this super family.



Dad

Divide



Mom

Multiply



Sister

Subtract



Brother

**Bring
down**



Rover

**Repeat
or
Remainder**

The Problem

$$795 \div 2$$

The Problem

Change it to look like this...

$$2 \overline{) 795}$$

Step 1. Divide

7 2

÷



Dad

Divide

$$\begin{array}{r} 3 \\ 2 \overline{) 795} \end{array}$$

Divide the 2 into the first number in the dividend.

Ask yourself how many times does 2 go into 7 without going over.

Write the number directly above the number you divided into.

Step 2. Multiply $2 \times 3 = 6$



Mom

Multiply

$$\begin{array}{r} 3 \\ 2 \overline{) 795} \\ \underline{6} \end{array}$$

Multiply the divisor times the first number in the quotient.

Write your answer directly under the 7 or the number you just divided into.

Step 3. Subtract $7 - 6 = 1$



Sister

Subtract

$$\begin{array}{r} 3 \\ 2 \overline{) 795} \\ \underline{- 6} \\ 1 \end{array}$$

Draw a line under the 6.

Draw a minus sign.

Subtract 6 from 7.

Write the answer directly under the 6.

Step 4. Bring down

Bring down the 9



Brother

Bring
down

$$\begin{array}{r} 3 \\ 2 \overline{) 795} \\ \underline{-6} \\ 19 \end{array}$$

Go to the next number in the dividend.

Draw an arrow under the 9.

Bring down the 9 and put it next to the 1.

Step 5. Repeat or Remainder_{Repeat}



Rover

Repeat?

or

Remainder?

$$\begin{array}{r} 3 \\ 2 \overline{) 795} \\ \underline{6} \\ 19 \end{array}$$

Since we have more to divide we must repeat.

We have not done anything with the 5 yet, so we must keep going and repeat the 5 steps of long division.

Step 1. Divide $19 \div 2$



Dad

Divide $2 \overline{) 795}$

39

-6

19

A long division diagram showing the first step of dividing 795 by 2. The divisor 2 is on the left, and the dividend 795 is on the right. A horizontal line is drawn above the 795. The quotient 39 is written above the line, with the 3 above the 7 and the 9 above the 9. A vertical line is drawn below the 795. A horizontal line is drawn below the 795. The number 6 is written below the 7, and a minus sign is to its left. A vertical line is drawn below the 6. The number 19 is written below the 19, with a vertical line to its left. A red arrow points from the 2 in the divisor to the 19 in the remainder.

Divide 2 into your new number, 19. Get as close as you can without going over.

Place your answer directly above the 9 in the quotient.

Step 2. Multiply $2 \times 9 = 18$



Mom

Multiply

$$\begin{array}{r} 39 \\ \hline 2 \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 1 \end{array}$$

Multiply your divisor, 2, with your new number in the quotient, 9.

Place your answer directly below the 19.

Step 3. Subtract $19 - 18 = 1$



Sister

Subtract

$$\begin{array}{r} 2 \overline{) 795} \\ \underline{6} \\ 19 \\ \underline{18} \\ 1 \end{array}$$

Draw a line under the 18.

Draw a minus sign.

Subtract 18 from 19.

Write the answer under the line.

Step 4. Bring down

Bring down
the 5



Brother

Bring
down

$$\begin{array}{r} 39 \\ 2 \overline{) 795} \\ \underline{- 6} \\ 19 \\ \underline{- 18} \\ 10 \\ \underline{- 10} \\ 0 \end{array}$$

The diagram shows a long division problem: 2 into 795. The quotient is 39. The remainder is 0. A red arrow points down from the 5 in the dividend to the 5 in the quotient, indicating the step of bringing down the 5.

Go to the next number in the dividend.

Draw an arrow under the 5.

Bring down the 5 and put it next to the 1.

Step 5. Repeat or Remainder_{Repeat}



Rover

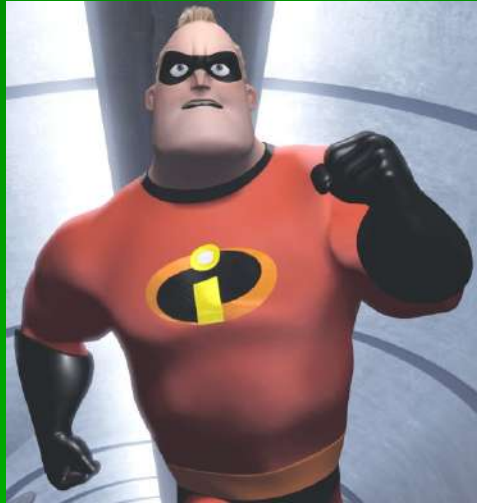
Repeat?
or
Remainder?

$$\begin{array}{r} 39 \\ \hline 2 \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \end{array}$$

Since we have more to divide we must repeat.

The 2 can go into 15, so we must keep going.

Step 1. Divide $15 \div 2$



Dad

Divide

$$\begin{array}{r} 397 \\ \hline 2 \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \end{array}$$

The diagram shows a long division problem. The divisor is 2, and the dividend is 795. The quotient is 397. The number 2 is highlighted in a yellow box. The number 15 is highlighted in a yellow box. A red arrow points from the 2 to the 15. The number 7 in the quotient is red. The number 15 in the remainder is white on a yellow background. The word 'Divide' is written in red to the left of the problem.

Divide 2 into your new number, 15. Get as close as you can without going over.

Place your answer directly above the 5 in the quotient.

Step 2. Multiply $2 \times 7 = 14$



Mom

Multiply

$$\begin{array}{r} 39\boxed{7} \\ \boxed{2} \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \\ \underline{14} \\ 10 \end{array}$$

Multiply your divisor, 2, with your new number in the quotient, 7.

Place your answer directly below the 15.

Step 3. Subtract $15 - 14 = 1$



Sister

Subtract

$$\begin{array}{r} 397 \\ 2 \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \\ \underline{-14} \\ 1 \end{array}$$

Draw a line under the 14.

Draw a minus sign.

Subtract 14 from 15.

Write the answer under the line.

Step 4. Bring down

There are no more to bring down



Brother

Bring
down

$$\begin{array}{r} 397 \\ 2 \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \\ \underline{-14} \\ 1 \end{array}$$

Look at your dividend to see if there are any more numbers to bring down.

If there are no more numbers to bring down then move on to step 5.

Step 5. Repeat or

Remainder

There are no more numbers to bring down



Rover

~~Repeat?~~

~~or~~

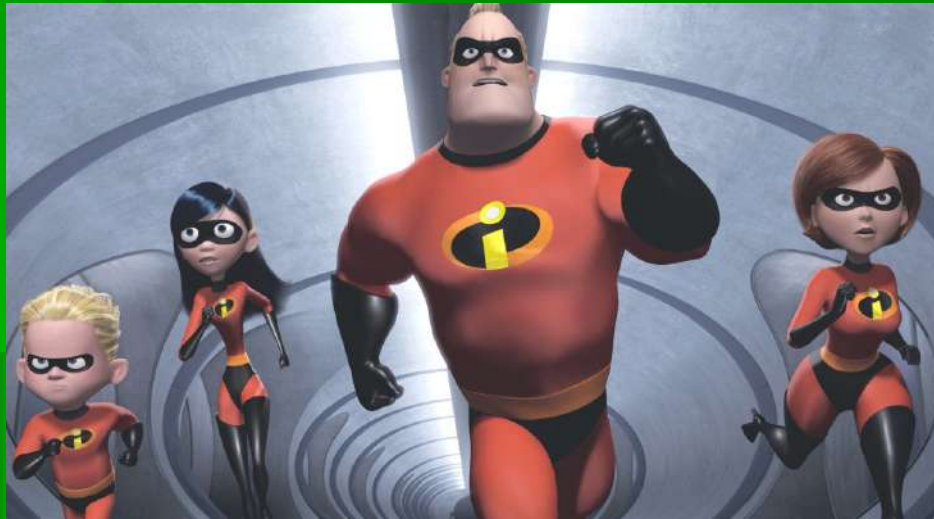
Remainder?

$$\begin{array}{r} 397 \text{ R } 1 \\ 2 \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \\ \underline{-14} \\ 1 \end{array}$$

Since there are no more numbers to bring down and 2 will not divide into 1, you do not repeat.

The number left over, 1, becomes the remainder. Just copy it to the end of the quotient with an R in front of it.

You are done.



Super job!!

$$\begin{array}{r} 397R1 \\ 2 \overline{) 795} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \\ \underline{-14} \\ 1 \end{array}$$



Ruff Ruff