

Long Division

Steps:

- Step 1: Estimate
- Step 2: Do (D M S D)
- Step 3: Check

Divide
Multiply
Subtract
Drop

Step 1: Estimate First!

$$473 \div 11$$

Round each number to the nearest 10.

$$473 \longrightarrow 470$$

$$11 \longrightarrow 10$$

Our estimate is: $470 \div 10$

Cross off your zeros

$$47\cancel{0} \div 1\cancel{0} = 47$$

47 is our estimate

Step 2: Do the Calculation

A: Set up the calculation like this:

$$11 \overline{) 473}$$

This number is called the **divisor**

This number is called the **dividend**

B: Divide the divisor into the first number

$$4 \div 11$$

C: It won't go, so write 0 above the 4. Next, **divide** the divisor into

the first two numbers. It might be helpful to block out the number like this:

$$\begin{array}{r} 0 \\ 11 \overline{) 47 \boxed{3}} \end{array}$$

D: At this point it is useful to do short **multiplication** for all the multiples of 11 e.g. 11×2 , 11×3 , 11×4 , 11×5 , 11×9

E: So, how many times will 11 go into 47? $11 \times 4 = 44$, so 11 will divide into 47 four times. Write the number 44 under the 47. Write 4 above the number 47 as follows:

$$\begin{array}{r} 04 \\ 11 \overline{) 47 \boxed{3}} \\ 44 \end{array}$$

F: Now **subtract** 44 from 47 to find what is left over.

$$\begin{array}{r} 04 \\ 11 \overline{) 47 \boxed{3}} \\ - 44 \\ \hline 3 \end{array}$$

G: You have 3 units left over and you still have to divide 11 into the last number, 3. **Drop** down the 3 beside the 3 that was left over.

$$\begin{array}{r} 04 \\ 11 \overline{) 47 \boxed{3}} \\ - 44 \downarrow \\ \hline 33 \end{array}$$

H: How many times will 11 divide into 33? $11 \times 3 = 33$, so 11 will divide into

33 three times. Write the number 33 under the 33 and subtract.

Then, put your 3 on top as follows:

$$\begin{array}{r} 043 \\ 11 \overline{)473} \\ \underline{-44} \\ 33 \\ \underline{-33} \\ 00 \end{array}$$

I: Nothing left to bring down? Then you're done! If there is a remainder we leave it at the bottom and write our answer below our calculation including the remainder.

Step 3: Check

The final step is to check your answer using long multiplication. We multiply the answer (43 in this case) by the divisor (11 in this sum) and if our answer is the same as the dividend (473 in this sum) we know we have done the calculation correctly.

If there is a remainder in your answer, first carry out your long multiplication calculation and then add the remainder. You should arrive back at the dividend (the number being divided)