The Main idea: Find Compatible Numbers

To make estimates in division it is helpful to find compatible numbers. Compatible numbers are numbers that you can compute easily. They are numbers that will give you a quick answer without a remainder.

Let's look at the problem 3678 ÷ 57.  
Round the divisor first- 57 can be round to 60.  
Now, let's find a compatible number for 60. To do this, we think of the multiples of 60, which is the same as thinking of the multiples of 6.  
6, 12, 18, 24, 30, 36, 42

HEY, that 36 looks very familiar. It's like the first two digits in 3678. So I'm going to use the number 3600.

Now we have the problem 3600÷ 60, using two compatible numbers. Well that's easy. Our estimate for the quotient will be 60.  
I can check this by multiplying 60 x 60.

Note  
In this lesson you are asked to create two sets of compatible numbers. Since we don't have to follow normal rounding rules for this, here's how we'll get our other compatible numbers.  
Here's the problem 3678 ÷ 57  
We'll change our divisor to 50 instead of 60. Now we find compatible numbers for 50, or 5.  
5, 10, 15, 20, 25, 30, 35, 40.  
Now we have 3500÷ 50. I know that 5x7 is 35, so 50 x70 must = 3500.  
70 is my estimated quotient.

The actual answer for 3678 ÷ 57 is 64 R30

So… my estimates of 60 and 70 were pretty close and gave me a good idea of what the answer would be. By estimating, and doing mental math I can see if my answer is reasonable and makes sense.