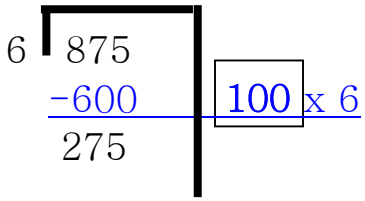
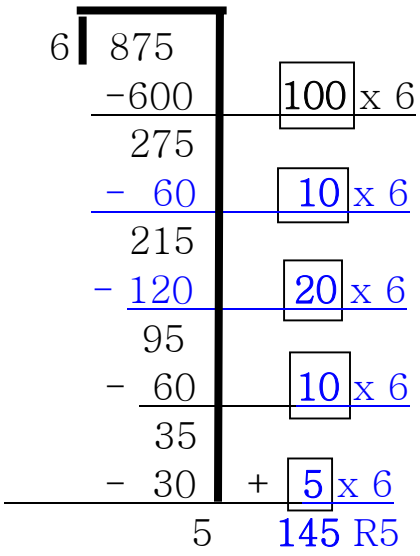
The "Big 7"

An alternative division strategy

This strategy is nicknamed the "Big 7" because the division box looks like a 7. This strategy (introduced to students in Grade 5) helps students understand long division as they utilize estimation, critical thinking skills, and the whole numbers involved in a given problem. It does not require finding the "best" multiple to be found at each step. Nor does it involve the teacher asking mathematically incorrect questions (i.e – How many times does 6 go into 8? This is an incorrect mathematical statement since the value of the number is not 8, it is 800)

Students will use numbers that make sense to them throughout the process; therefore, although the answer to the problem will be the same, the number of steps taken to solve the problem will vary based on students estimation skills and number sense.

1. Begin with estimation. About how many groups of 6's can fit into 875? Choose a number that's friendly and easy to think about. In this case 100 is a good choice because 6 x 100 = 600. Write 100 on the right and subtract 600 from 875, which leave 275. Some students box* the 100 knowing they need to add the boxed numbers up to find the quotient.	
2. Now ask: how many more groups of 6's can we take out of 275? Choose another friendly, easy to think about number. In this case 10 was chosen since there are at least 10 groups of 6. A new estimation is needed. Since 10 groups of 6 is only 60, let's try something larger, 20 groups of 6. The process of estimation with landmark numbers continues until we are finished. We add up the right column (boxed numbers) to find the number of groups of 6 in 875. The answer is 145 R5.	

3. As the students become fluent in multiples of the divisor and the powers of 10, this becomes a very efficient strategy.	6 ⟌ 875 −600 100 x 6 275 − 240 40 x 6 35 − 30 5 x 6 6 145 R5

A possible scaffold to this to help students move to more efficient groups of divisors to subtract is to have students first generate a list of multiples of the divisor and the powers of ten as shown below. Now they can look for the largest multiple to subtract at each step.

Multiples of 6

x	6	60	600
2	12	120	1,200
3	18	180	1,800
4	24	240	2,400
5	30	300	3,000