

# Long Division and Remainders

What is a remainder? A remainder exists when your divisor doesn't go into your dividend evenly, meaning that you don't have enough remaining to make another group. It is the "Left Over" amount after you have divided.

## Example:

1)  $23 \div 4 =$

4 goes into 23 five whole times, but there are three more left. Those three won't allow us to make another group of 4, so 3 is the remainder.

How do we write remainders? Up until this point, you have probably been writing remainders as "R 3". Now that you know more about what a remainder is, you will need to write your remainders differently to reflect that a remainder represents a PART of the whole.



We can write a remainder in one of two ways: a FRACTION or a DECIMAL.

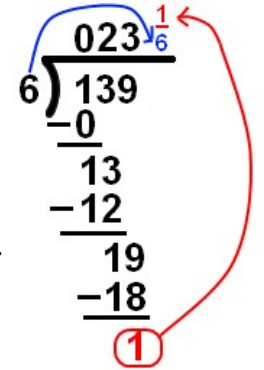
## Examples:

<u>Problem</u>	<u>Instead of writing the quotient as...</u>	<u>Quotient as a Fraction</u>	<u>Quotient as a Decimal</u>
	👎	👍	👍
$13 \div 5$	2 R 3	$2 \frac{3}{5}$	2.6
$93 \div 2$	46 R 1	$46 \frac{1}{2}$	46.5

# Remainders as Fractions

Divide:  $139 \div 6$

**Note:** When you divide, the divisor (6) goes into the dividend (139), 23 whole times, but there is 1 left over that won't make another group of 6. 1 is the remainder. We write it as a fraction with the remainder over the divisor. "There is one left when we needed six to make another whole."



## You Try:

Find the quotient and write the remainder as a fraction.

1)  $154 \div 4 =$

2)  $121 \div 8 =$

3)  $215 \div 20 =$

4)  $45 \div 8 =$

5)  $2856 \div 30 =$

6)  $222 \div 15 =$