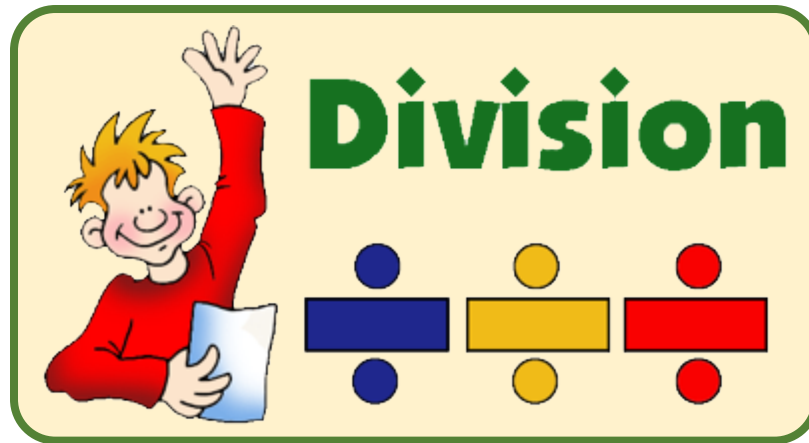


REMAINDERS



Unit Overview

In earlier units, all of the division problems had a quotient with no numbers left over. Now, we will look at division problems with remainders.

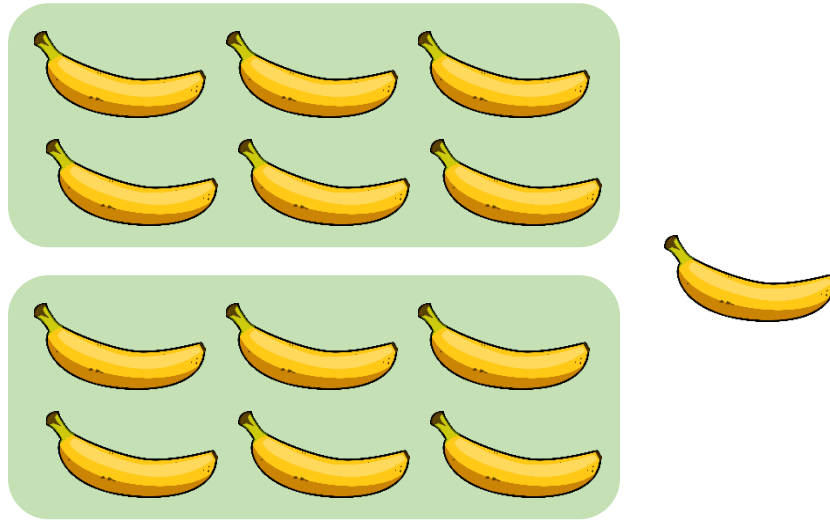
Remainders

- ❖ A **remainder** is the amount left over when you find a quotient.
- ❖ The **remainder** **MUST** be written with the quotient. The remainder is a very important part of the quotient.
- ❖ The **remainder** can **NEVER** be the same number or higher than the divisor.

Examples of a Division Problem with a Remainder

Example 1: If you divide 13 bananas evenly between Joe and Sally, how many does each one get?

$$13 \div 2 = ?$$



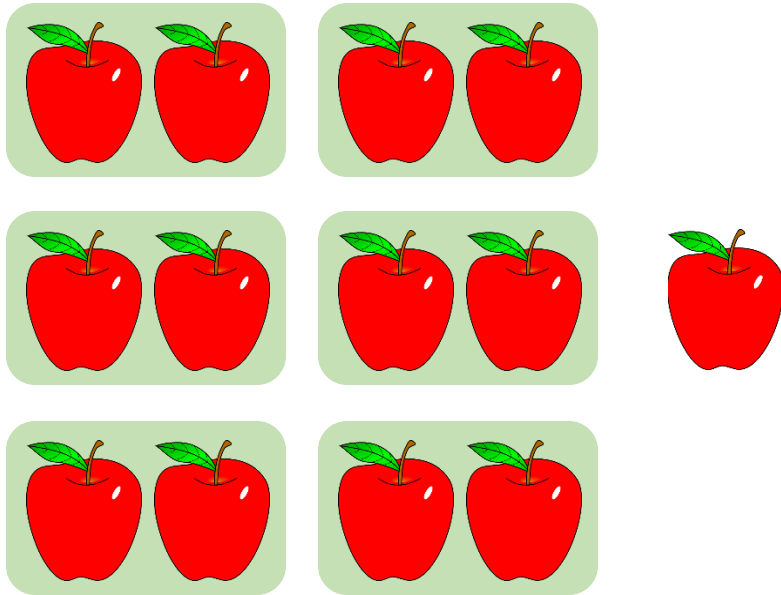
Joe and Sally each get 6 bananas, and one is left over.

We write this as: $13 \div 2 = 6 \text{ R}1$.

The leftover banana is called **the remainder**, and is indicated after the letter **R**.

Note: If we didn't want any leftovers, then both could get $6 \frac{1}{2}$ bananas.

Example 2: Here's another way of looking at division and remainder.
How many groups of 2 can we make out of 13 apples?

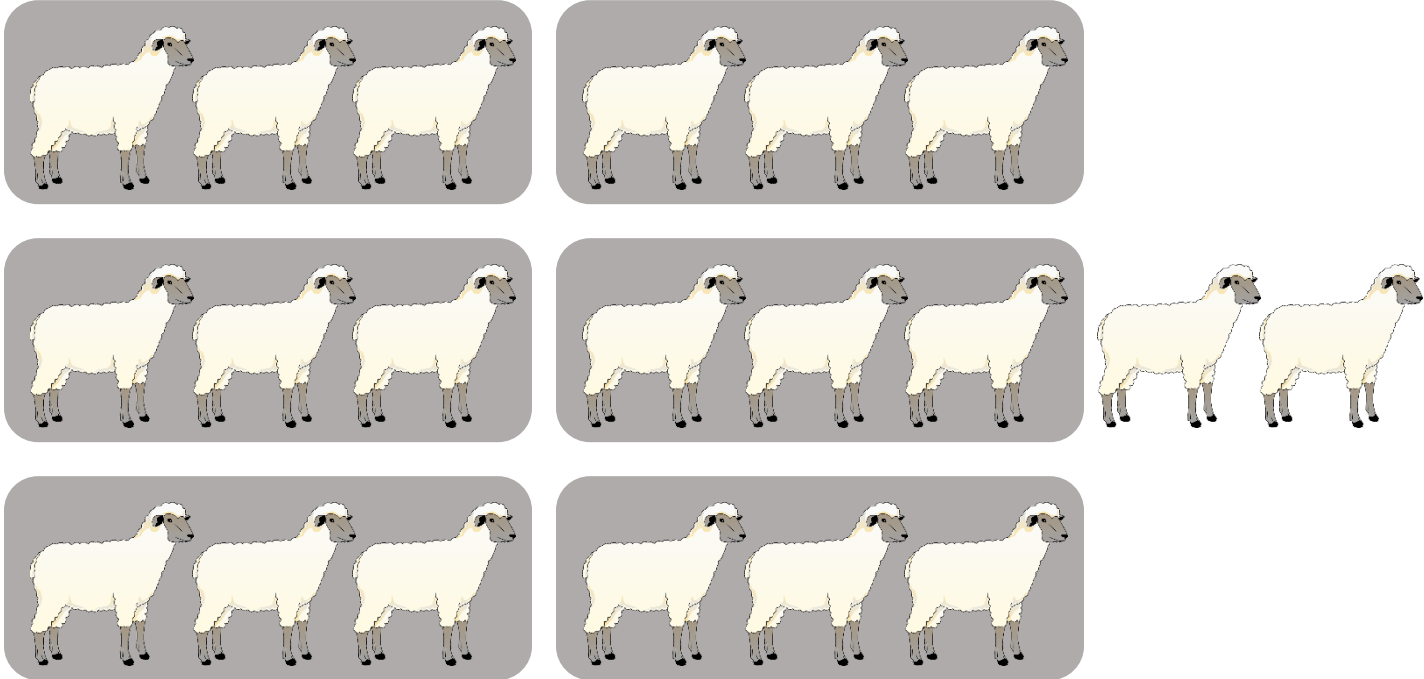


We can make six groups. One apple is left over.

So, $13 \div 2 = 6 \text{ R}1$.

Example 3: How many groups of 3 can we make out of 20 sheep?

$$20 \div 3 = ?$$



Think: How many groups of 3 are there in 20? OR How many times does 3 fit into 20?

$$6 \times 3 = 18 \quad \text{and} \quad 7 \times 3 = 21 \text{ (too much)}$$

So, 3 goes into 20 six times. Since $6 \times 3 = 18$, and 18 is 2 less than 20, the remainder is 2.

You will find the remainder by finding the **difference** between 20 and $6 \times 3 = 18$. $20 - 18 = 2$.

$$\text{So, } 20 \div 3 = 6 \text{ R}2.$$

Example 4: $42 \div 8 = ?$

Think: How many times does 8 fit into 42?

$5 \times 8 = 40$ and $6 \times 8 = 48$ (too much)

So, 8 goes into 42 five times. And, 5×8 is 40. The remainder is the difference between 40 and 42, or 2.

So, $42 \div 8 = 5 \text{ R}2$.

Click on the link to watch the video "[Dividing numbers: Intro to remainders](#)".

