

Grade 4 - Dividing with Remainders - Lesson

Common Core 4.NBT.B.6 · maths-pdf.fr/en/

To divide by a 1-digit number, break the dividend into easy parts, find partial quotients, and add them. Anything left that is smaller than the divisor is the remainder. Check by multiplying the quotient by the divisor and adding the remainder. For example, $47 \div 5 = 9 \text{ R } 2$ because $9 \times 5 + 2 = 47$.

Grade 4 · Common Core State Standards: **4.NBT.B.6**

Key facts

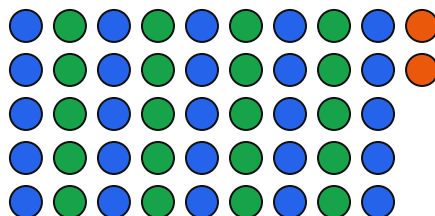
- Dividend $\div$ divisor = quotient with a remainder; the remainder is less than the divisor.
- Partial quotients: divide easy parts of the dividend and add the results.
- An area model for division starts with the area (dividend) and one side (divisor).
- Check: quotient $\times$ divisor + remainder = dividend.
- Think about the story to decide what to do with a remainder.

What does it mean to divide with a remainder?

Division shares a number into equal groups. Sometimes the groups come out even. Sometimes a few are left over. The leftover amount is the **remainder**.

Division vocabulary

In $47 \div 5 = 9 \text{ R } 2$: 47 is the **dividend**, 5 is the **divisor**, 9 is the **quotient**, and 2 is the **remainder**. The remainder is always less than the divisor.

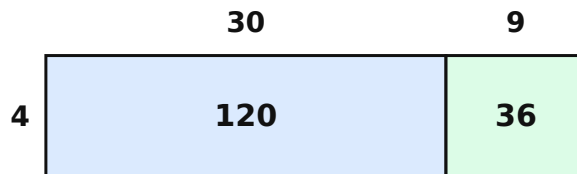


9 groups of 5 2 left

47 dots in groups of 5 make 9 full groups with 2 left over: $47 \div 5 = 9 \text{ R } 2$.

How do partial quotients work?

Break the dividend into parts that are easy to divide by the divisor. Divide each part, then add the partial quotients.

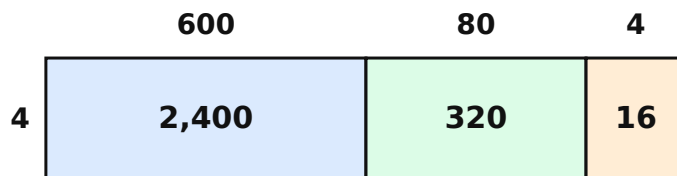


$156 \div 4$: the areas 120 and 36 give the partial quotients 30 and 9. So $156 \div 4 = 39$.

$156 = 120 + 36$. Since $120 \div 4 = 30$ and $36 \div 4 = 9$, the quotient is $30 + 9 = 39$.

How do you divide a 4-digit number by a 1-digit number?

Use place value. Think of 2,736 as $2,400 + 336$, and break 336 into $320 + 16$.

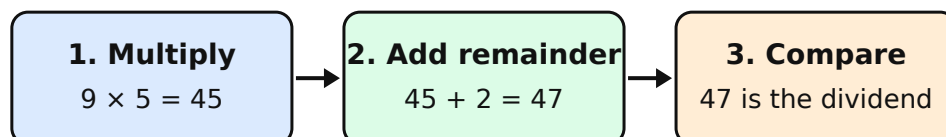


$2,736 \div 4 = 600 + 80 + 4 = 684$.

1. Find the largest multiple of the divisor you can take from the dividend, using hundreds, tens, or ones.
2. Subtract it and write the partial quotient.
3. Repeat with what is left until it is less than the divisor.
4. Add the partial quotients. Any amount left is the remainder.

How do you check a division answer?

Multiplication undoes division. Multiply the quotient by the divisor, then add the remainder. The result must equal the dividend.



Check a quotient with remainder: quotient $\times$ divisor + remainder.

Example: $817 \div 4$. Take $4 \times 200 = 800$. Left: 17. Take $4 \times 4 = 16$. Left: 1. The quotient is $200 + 4 = 204$ with remainder 1. Check: $204 \times 4 + 1 = 817$.

Questions about dividing with remainders

What is a remainder?

A remainder is the amount left over after you make as many equal groups as possible. In $47 \div 5 = 9 \text{ R } 2$, nine groups of 5 use 45, and 2 are left.

Why must the remainder be smaller than the divisor?

If the remainder were as big as the divisor, you could make one more group. Dividing 47 by 5 cannot leave 5 or more, because 5 more would make another group of 5.

What are partial quotients?

Partial quotients are the answers to easier divisions that add up to the full quotient. For $156 \div 4$, the partial quotients are 30 and 9, so the quotient is 39.

How do I check a division with a remainder?

Multiply the quotient by the divisor and add the remainder. For $817 \div 4 = 204 \text{ R } 1$, check $204 \times 4 + 1 = 816 + 1 = 817$.

What do I do with a remainder in a word problem?

Read the story. Sometimes you ignore the remainder, like full teams. Sometimes you round up, like vans needed for 94 people with 7 seats each. Sometimes you share the leftover, like cutting it into parts.