Fundamentals of elementary school mathematics

© Sascha Hunsicker

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# Foreword

In this script all topics of the primary school are summarized. At the end of each task the solutions are to be found. On my homepage www.mathekars.de you can find a lot of additional Excel sheets under Exercise Materials, with which you can generate tasks. The solutions for each task are also included here.

You are welcome to send me criticism and suggestions:

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1. Counting

It is best to count and calculate with your own fingers. A hand has five fingers. Two hands have ten fingers. When we start counting with our fingers, we don't have to start counting again every time we have to show seven fingers, for example. We can start directly with five fingers on one hand and then simply continue counting to seven on the other. Instead of using our fingers, we could also count and calculate with balls like on the abacus1[[1]](#footnote-1). Another possibility would be to paint boxes and then count them.

If, for example, the number seven is to be represented, then we paint seven boxes.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |

Task 2.0.1.

Try it yourself. Mark as many boxes as indicated.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |  |

But with our fingers we can only count and calculate to ten. For larger numbers we would have to add the toes, which ends at 20 again. With the boxes we can also represent larger numbers. You may have noticed that five are always combined to form a "package". With this knowledge you can now count skillfully.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

5 10 15 20

Task 2.0.2.  
Mark as many boxes as indicated.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Task 2.0.3.  
How many dice eyes are there?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

You can also compare numbers with the help of your fingers. For example, if you have three fingers on your left hand and five fingers on your right hand, you will see more fingers on your right hand. But even this becomes difficult if we want to compare numbers that are greater than ten.   
The best way is to imagine the numbers on the number ray.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |  |

The further right a number is, the larger it is.

Since 12 is to the right of 8, 12 is greater than 8, mathematically this is written in short form: 12 > 8. If you are older than your brother, then your brother is also younger than you. Instead of 12 > 8 it is also true when you write 8 < 12.  
For example, if you have the same amount of money as someone else, then you write 10 = 10.

Task 2.0.4.  
Write >, < or = in the box.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 20 |  | 19 |  | 17 |  | 19 |
| 7 |  | 5 |  | 8 |  | 4 |
| 18 |  | 3 |  | 14 |  | 15 |
| 8 |  | 11 |  | 13 |  | 11 |
| 11 |  | 17 |  | 8 |  | 6 |
| 7 |  | 6 |  | 1 |  | 8 |
| 6 |  | 4 |  | 3 |  | 20 |
| 4 |  | 6 |  | 4 |  | 4 |

Task 2.0.5.  
Note the predecessor and the successor respectively

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Predecessor | Numer | Successor |  | Predecessor | Numer | Successor |
|  | 5 |  |  |  | 12 |  |
|  | 7 |  |  |  | 18 |  |
|  | 9 |  |  |  | 23 |  |
|  | 4 |  |  |  | 54 |  |

1. Plus and minus

In mathematics there are 4 basic arithmetic operations

- Plus 🡪 Addition

- Minus 🡪 Subtraction

- Times 🡪 Multiplication

- Divided 🡪 Division

Depending on the calculation method, the numbers get their own names:

Addition: Summand + Summand = Sum  
 3 + 5 = 8

Subtraction: Minuend – Subtrahend = difference  
 10 – 7 = 3  
Multiplication: factor • factor = product  
 3 • 2 = 6  
Division: Dividend : Divisor = Quotient  
 8 : 4 = 2

* 1. Addition

If you have 3 € and get 2 € more, then you have 5 €. So you calculate   
 3 + 2 = 5  
Three plus two equals five  
Plus therefore means that something is added. Instead of saying "we calculate plus", you also say "add". A plus task is therefore also called an addition.  
  
Task 3.1.1.  
Write the arithmetic problem in addition and calculate.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | + | 6 | = | 9 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| \_\_ | + | \_\_ | = | \_\_ |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

Task 3.1.2.  
Calculate

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | + | 6 | = |  |  | 2 | + | 8 | = |  |
| 6 | + | 2 | = |  |  | 6 | + | 4 | = |  |
| 5 | + | 1 | = |  |  | 2 | + | 3 | = |  |
| 4 | + | 6 | = |  |  | 6 | + | 3 | = |  |
| 6 | + | 4 | = |  |  | 6 | + | 3 | = |  |
| 2 | + | 7 | = |  |  | 1 | + | 8 | = |  |
| 1 | + | 5 | = |  |  | 5 | + | 1 | = |  |
| 2 | + | 5 | = |  |  | 8 | + | 2 | = |  |
| 5 | + | 4 | = |  |  | 7 | + | 3 | = |  |

Task 3.1.3.  
Enter numbers in the coins and notes so that you receive the specified amount.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| 2 € | 6 € | 8€ | 6 € | 5 € | 1. € |

* 1. Subtraction

However, not only can something be added to a number, something can also be subtracted. If you have 8 sweets and eat 3, then you only have 5 sweets left. So you calculate

8 – 3 = 5

Eight minus three = five

So minus means that something is taken away. Instead of saying "we calculate minus" we also say subtract. A minus task is therefore also called subtraction.   
In addition, you have added fingers, in subtraction we take fingers away.  
Try to calculate the following tasks without using your fingers.

Task 3.2.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | - | 1 | = |  |  | 4 | - | 3 | = |  |
| 10 | - | 7 | = |  |  | 4 | - | 1 | = |  |
| 5 | - | 3 | = |  |  | 4 | - | 3 | = |  |
| 8 | - | 6 | = |  |  | 10 | - | 9 | = |  |
| 5 | - | 2 | = |  |  | 6 | - | 1 | = |  |
| 2 | - | 1 | = |  |  | 6 | - | 1 | = |  |
| 10 | - | 3 | = |  |  | 4 | - | 2 | = |  |
| 4 | - | 2 | = |  |  | 9 | - | 5 | = |  |
| 2 | - | 1 | = |  |  | 8 | - | 6 | = |  |
| 5 | - | 3 | = |  |  | 1 | - | 1 | = |  |

* 1. Task and Reverse Task

For each task there is a reverse task.  
This is the task. Then the reverse task is  
4 + 3 = 7 🡪 7 – 3 = 4

Task 3.3.1.  
Note the reverse task in each case.  
5 + 5 = 10 🡪 10 – 5 = \_\_ 4 + 3 = 7 🡪 \_\_ – \_\_ = \_\_   
5 + 4 = 9 🡪 \_\_ – \_\_ = \_\_ 1 + 4 = 5 🡪 \_\_ – \_\_ = \_\_  
8 – 3 = 5 🡪 5 + \_\_ = \_\_ 8 – 4 = 4 🡪 \_\_ – \_\_ = \_\_  
9 – 3 = 6 🡪 \_\_ + \_\_ = \_\_ 5 – 3 = 2 🡪 \_\_ + \_\_ = \_\_

* 1. Addition with tens transition

Now it is getting more difficult. We add numbers where the result is greater than ten. The easiest way to do this is to paint boxes and add them up again.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 |  |  |  |  |  |  | + |  |  | 5 |  |  | = | 12 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Task 3.4.1.  
Calculate the tasks by coloring the boxes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | + | 1 | = |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | + | 10 | = |  | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | + | 8 | = |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | + | 11 | = |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | + | 2 | = |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Since you can't always paint boxes, we have to think of another strategy. For example, if you want to calculate 3 + 8, then you have to break down one of the numbers to get to 10. Now we have to think about how much of the decomposed number is needed to get to 8 in our case. These individual numbers are then added together.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | |  | | --- | | 3 + 7 = 10 | | | |  |  |  |  |  |  |  |  |
| 3 | + | 8 | = | 3 | + | |  | | --- | | 7 | | + | 1 | = | 10 | + | 1 | = | 11 |
|  |  |  |  |  |  | 7 + 1 = 8 | | |  |  |  |  |  |  |

Let's do it step by step.  
3 + 8 = 3 + 7 + 1 = 10 + 1 = 11  
The goal is to break down a number so that you get the next tens (10, 20, 30, 40, etc.).  
Let’s do a little exercise. Think about how much you have to add to the given number to get the tens.

Task 3.4.2.  
Example

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | + | 8 | = | 10 |

You must use 8, because 10 - 2 = 8

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | + |  | = | 10 |  | 66 | + |  | = | 70 |
|  |  |  |  |  |  |  |  |  |  |  |
| 72 | + |  | = | 80 |  | 87 | + |  | = | 90 |
|  |  |  |  |  |  |  |  |  |  |  |
| 38 | + |  | = | 40 |  | 75 | + |  | = | 80 |
|  |  |  |  |  |  |  |  |  |  |  |
| 27 | + |  | = | 30 |  | 4 | + |  | = | 10 |
|  |  |  |  |  |  |  |  |  |  |  |
| 46 | + |  | = | 50 |  | 59 | + |  | = | 60 |
|  |  |  |  |  |  |  |  |  |  |  |
| 4 | + |  | = | 10 |  | 2 | + |  | = | 10 |

Task 3.4.3  
Write down the numbers so that 10 always comes out.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 10 |  | 10 |  | 10 |
| 1 + 9 = 10 |  | 10 + |  | + 5 = |
| 2 + |  | 9 + |  | + 8 = |
| 3 + |  | 8 + |  | + 4 = |
| 4 + |  | 7 + |  | + 7 = |

Now let's do the math by breaking down the numbers and then continuing the calculation.  
Task 3.4.4  
Put the correct numbers in the boxes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | + | 7 | = | 15 | + | 5 | + | 2 | = | 20 | + | 2 | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | + | 4 | = | 9 | + | 1 | + | 3 | = | 10 | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | + | 9 | = | 14 | + | 6 | + |  | = |  | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | + | 8 | = |  | + |  | + |  | = |  | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | + | 8 | = |  | + |  | + |  | = |  | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | + | 8 | = |  | + |  | + |  | = |  | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | + | 9 | = |  | + |  | + |  | = |  | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | + | 8 | = |  | + |  | + |  | = |  | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | + | 9 | = |  | + |  | + |  | = |  | + |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | + | 8 | = |  | + |  | + |  | = |  | + |  | = |  |

In the next step you should be able to do the dissection in your head. To do this, you have to decompose the numbers in your head and calculate further.  
Try it out in the next task.  
Task 3.4.5.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 |  | + | 10 | = |  |  | 7 | + | 9 | = |  |
| 11 |  | + | 4 | = |  |  | 3 | + | 7 | = |  |
| 11 |  | + | 3 | = |  |  | 2 | + | 3 | = |  |
| 9 |  | + | 3 | = |  |  | 5 | + | 2 | = |  |
| 10 |  | + | 8 | = |  |  | 14 | + | 5 | = |  |
| 14 |  | + | 5 | = |  |  | 11 | + | 7 | = |  |
| 9 |  | + | 3 | = |  |  | 16 | + | 4 | = |  |
| 18 |  | + | 1 | = |  |  | 2 | + | 5 | = |  |
| 1 |  | + | 6 | = |  |  | 7 | + | 5 | = |  |
| 8 |  | + | 10 | = |  |  | 6 | + | 14 | = |  |

## 3.5. Subtraction with tens transition

We have seen that tens play a major role in arithmetic. In subtraction, a lot is also about them. For example, if we want to calculate 13 - 6. So we first calculate up to 10 and then subtract further.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | |  | | --- | | 13 - 3 = 10 | | | |  |  |  |  |  |  |  |  |
| 13 | - | 6 | = | 13 | - | 3 | - | 3 | = | 10 | - | 3 | = | 7 |
|  |  |  |  |  |  | |  | | --- | | 3 + 3 = 6 | | | |  |  |  |  |  |  |

13 – 6 = 13 – 3 – 3 = 10 – 3 = 7  
The goal is to be broken down so that you subtract up to tens and then continue to calculate.  
Task 3.5.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | - | 9 | = | 13 | - | 3 | - | 6 | = | 10 | - | 6 | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | - | 9 | = | 17 | - | 7 | - | 2 | = | 10 | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | - | 9 | = | 11 | - | 1 | - |  | = |  | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | - | 8 | = |  | - |  | - |  | = |  | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | - | 9 | = |  | - |  | - |  | = |  | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | - | 8 | = |  | - |  | - |  | = |  | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | - | 9 | = |  | - |  | - |  | = |  | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | - | 9 | = |  | - |  | - |  | = |  | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 | - | 5 | = |  | - |  | - |  | = |  | - |  | = |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | - | 6 | = |  | - |  | - |  | = |  | - |  | = |  |

In the next step you should be able to do the dissection in your head. Then you have to decompose the numbers in your head and continue calculating.  
Try it out in the next task.

Task 3.5.2.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | - | 5 | = |  |  | 6 | - | 4 | = |  |
| 4 | - | 2 | = |  |  | 10 | - | 2 | = |  |
| 18 | - | 7 | = |  |  | 23 | - | 3 | = |  |
| 13 | - | 3 | = |  |  | 17 | - | 6 | = |  |
| 2 | - | 1 | = |  |  | 17 | - | 2 | = |  |
| 6 | - | 3 | = |  |  | 24 | - | 5 | = |  |
| 9 | - | 6 | = |  |  | 15 | - | 6 | = |  |
| 8 | - | 7 | = |  |  | 17 | - | 3 | = |  |
| 3 | - | 1 | = |  |  | 5 | - | 2 | = |  |
| 9 | - | 3 | = |  |  | 13 | - | 6 | = |  |

1. Written addition and subtraction

4.1. The value board

In order to be able to calculate in writing, one must first consider how our numbers are "constructed". The number 10 is very important for our calculation. We have 10 fingers and 10 toes. Therefore we calculate in the ten system. The easiest way to imagine this system is with money. However, in the system of ten there are only 1 Euro coins, 10 Euro notes, 100 Euro notes, 1000 Euro notes etc.

But we take the money only for presentation purposes. We say mathematically to the 1 euro coins one, to the 10 euro notes tens, to the 100 euro notes hundreds, to the 1000 euro notes thousands and so on.

So for the number 7 we need 7 of the 1 euro coins. So 7 units.

For the number 10 we need the 10 euro notes once. So 1 tens and 0 units  
For the number 13 we need the 10 Euro note 1 time and from the 1 Euro coins 3 pieces. So 1 tens and 3 ones.  
It's even easier to write this on the so-called value board.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Zahl | Tausender | Hunderter | Zehner | Einer |
|  | T | H | Z | E |
| 7 |  |  |  | 7 |
| 10 |  |  | 1 | 0 |
| 13 |  |  | 1 | 3 |
| 24 |  |  | 2 | 4 |
| 100 |  | 1 | 0 | 0 |
| 435 |  | 4 | 3 | 5 |
| 1000 | 1 | 0 | 0 | 0 |
| 1234 | 1 | 2 | 3 | 4 |

You can see that the numbers can be easily read from the value table.  
The number 435 is 4 hundreds and 3 tens and 5 ones.  
In short notation: 4 H 3 Z 5 E. If you only read the numbers here it is 435 again.  
  
Task 4.1.1.  
Write the numbers on the significance board

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Zahl | Tausender | Hunderter | Zehner | Einer |
|  | T | H | Z | E |
| 8 |  |  |  |  |
| 20 |  |  |  |  |
| 34 |  |  |  |  |
| 55 |  |  |  |  |
| 200 |  |  |  |  |
| 734 |  |  |  |  |
| 3000 |  |  |  |  |
| 4254 |  |  |  |  |

Task 4.1.2.  
What are the numbers called?  
3H + 2Z + 4E = 300 + 20 + 5 = 324  
2H + 5Z + 3E = \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_  
3H + 6Z + 7E = \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_  
5H + 0Z + 9E = \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_  
9H + 4Z + 0E = \_\_\_ + \_\_\_ + \_\_\_ = \_\_\_

## 4.2. Written Addition

To be able to add in writing, we need to know how our number system is constructed.   
Let's take the task 3 + 8: If we would take 3 balls and add 8 balls, we would have 13 balls, which is correct. In our system of ten, however, we take as few balls or coins or notes as possible. So for the 13 we would take 1 Z and 3 E.   
If we calculate 17 + 8, the result is 25, so 2 Z and 5 E. Let's calculate this in writing. It is very important that you write each digit in a box!  
17 + 8 = 25

|  |  |  |
| --- | --- | --- |
|  | Z | E |
|  | 1 | 7 |
| + |  | 8 |
|  |  | 15 🡪 das sind 1 Z und 5 E. Daher schreiben wir bei den Einern 5 und bei den Zehnern 1 hin. |
|  | 1 |  |
|  | 2 | 5 |

Now we add two double-digit numbers. Again, we have to make sure that the number 9 is the maximum number for the ones. If there were 10 ones, then we would write 1 Z 0 E.   
37 + 16 = 43

|  |  |  |
| --- | --- | --- |
|  | Z | E |
|  | 3 | 7 |
| + | 1 | 6 |
|  |  | 13 🡪 das sind 1 Z und 3 E. Daher schreiben wir bei den Einern 3 und bei den Zehnern 1 hin. |
|  | 1 |  |
|  | 4 | 3 |

In short, you calculate it like this:

|  |  |  |
| --- | --- | --- |
|  | Z | E |
|  | 3 | 7 |
| + | 1 | 6 |
|  | 1 |  |
|  | 4 | 3 |

For the ones you calculate: 7 + 6 = 13, write 3 for the ones and 1 for the tens.

For the tens, write 3 + 1 + 1 = 4.

The number you write down is called a carry, because this number is carried over to the next column.   
In the same way, one also calculates with three-digit numbers.

|  |  |  |  |
| --- | --- | --- | --- |
|  | H | Z | E |
|  | 2 | 4 | 5 |
| + | 3 | 8 | 9 |
|  | 1 | 1 |  |
|  | 6 | 3 | 4 |

Task 4.2.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | T | O |  |  | T | O |  |  | T | O |  |  | T | O |
|  | 6 | 7 |  |  | 3 | 6 |  |  | 5 | 5 |  |  | 7 | 1 |
| + | 7 | 3 |  | + | 5 | 0 |  | + | 5 | 3 |  | + | 6 | 6 |
| 1 | 1 |  |  |  |  | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | T | O |  |  | T | O |  |  | T | O |  |  | T | O |
|  | 4 | 8 |  |  | 8 | 6 |  |  | 5 | 1 |  |  | 4 | 0 |
| + | 9 | 8 |  | + | 6 | 1 |  | + | 5 | 6 |  | + | 3 | 1 |
| 1 | 1 |  |  | 1 |  | 0 |  | 0 | 0 | 0 |  | 0 | 0 | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | T | O |  |  | T | O |  |  | T | O |  |  | T | O |
|  | 4 | 8 |  |  | 2 | 8 |  |  | 7 | 0 |  |  | 7 | 7 |
| + | 4 | 8 |  | + | 4 | 3 |  | + | 9 | 7 |  | + | 4 | 5 |
| + | 3 | 6 |  | + | 4 | 1 |  | + | 2 | 2 |  | + | 1 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | T | O |  |  | T | O |  |  | T | O |  |  | T | O |
|  | 9 | 5 |  |  | 7 | 8 |  |  | 4 | 3 |  |  | 2 | 0 |
| + | 5 | 6 |  | + | 1 | 8 |  | + | 5 | 2 |  | + | 7 | 4 |
| + | 8 | 7 |  | + | 5 | 3 |  | + | 4 | 6 |  | + | 6 | 0 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | T | O |  |  | H | T | O |  |  | H | T | O |
|  | 3 | 0 | 4 |  |  | 1 | 4 | 1 |  |  | 1 | 5 | 4 |
| + | 1 | 8 | 8 |  | + | 5 | 3 | 7 |  | + | 7 | 2 | 5 |
| + | 1 | 3 | 8 |  | + | 1 | 2 | 2 |  | + | 5 | 3 | 7 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

## 4.3. Written subtraction

For written subtraction we also need the value table again. Just as with written addition, only the units, only the tens, only the hundreds, etc. are counted.

|  |  |  |
| --- | --- | --- |
|  | T | O |
|  | 2 | 4 |
|  |  | 8 |
|  | 1 | 4 – 8 geht nicht, daher rechnen wir 14 – 8 = 6. Da wir aus 4 einfach 14 gemacht haben, müssen wir den Zehner wieder abziehen |
|  | 1 | 6 |

Subtrahend - Minuend = difference  
It is best to always think about how much there is to subtract from the subtrahend. If the minuend is smaller than the subtrahend, you simply add 10 and subtract. You have to write the "borrowed" ten into the carry and then subtract it again.   
In short form you calculate as follows:

|  |  |  |
| --- | --- | --- |
|  | T | O |
|  | 3 | 3 |
|  |  | 9 |
|  | 1 |  |
|  | 2 | 4 |

In the same way one also calculates with three-digit numbers

|  |  |  |  |
| --- | --- | --- | --- |
|  | H | T | O |
|  | 4 | 2 | 5 |
|  | 2 | 4 | 8 |
|  | 1 | 1 |  |
|  | 1 | 7 | 7 |

Task 4.3.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  | Z | E |  |  | Z | E |  |  | Z | E |
|  | 3 | 8 |  |  | 6 | 6 |  |  | 7 | 4 |  |  | 9 | 3 |
| - | 2 | 3 |  | - | 5 | 3 |  | - | 4 | 3 |  | - | 5 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  | Z | E |  |  | Z | E |  |  | Z | E |
|  | 8 | 7 |  |  | 8 | 6 |  |  | 8 | 4 |  |  | 8 | 7 |
| - | 2 | 3 |  | - | 4 | 2 |  | - | 2 | 5 |  | - | 5 | 5 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | Z | E |  |  | H | Z | E |  |  | H | Z | E |
|  | 8 | 6 | 8 |  |  | 7 | 5 | 7 |  |  | 9 | 0 | 4 |
| - | 3 | 5 | 1 |  | - | 4 | 8 | 0 |  | - | 1 | 5 | 0 |
|  |  |  |  |  |  | 1 |  |  |  |  | 1 |  |  |
|  | 5 | 1 | 7 |  |  | 2 | 7 | 7 |  |  | 7 | 5 | 4 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | Z | E |  |  | H | Z | E |  |  | H | Z | E |
|  | 8 | 5 | 7 |  |  | 7 | 7 | 6 |  |  | 8 | 3 | 9 |
| - | 4 | 4 | 2 |  | - | 4 | 7 | 4 |  | - | 1 | 3 | 2 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 4 | 1 | 5 |  |  | 3 | 0 | 2 |  |  | 7 | 0 | 7 |

It becomes difficult when three or more numbers are to be subtracted. Let us look at an example of this. You get 20 € from your mother to go shopping. You buy chocolate for 2 €, bananas for 1 € and drinks for 5 €. How do you calculate how much money you bring back? You add all the money you spent and subtract this value from the €20. In the same way we subtract more than two numbers. We add all numbers except the first or largest and subtract from this largest number.

So the task 30 - 5 - 8 - 12 becomes 30 - (5 + 8 + 12) = 30 - 25 = 5

What is the meaning of the bracket here? It's very simple. What is in parenthesis is first. We will take a closer look at this in chapter xyz.

Now try to solve the following tasks as you did before.  
Task 4.3.2.  
40 – 4 – 11 – 5 = 40 – (4 + 11 + 5) = 40 – \_\_\_ = \_\_\_

46 – 14 – 4 – 9 = 46 – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_ – \_\_\_ = \_\_\_

55 – 14 – 3 – 15 = \_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_ – \_\_\_ = \_\_\_

100 – 10 – 30 – 20 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

120 – 12 – 33 – 20 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

234 – 110 – 35 – 26 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

534 – 234 – 135 – 86 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

The whole thing can of course also be done in writing. Let's try it out.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 9 | 4 | 0 |  |
| - | 4 | 6 | |  | | --- | | 6 | | 6 + 1 = 7 |
| - | 1 | 1 | 1 |
|  | 1 | 1 |  |  |
|  | 3 | 6 | |  | | --- | | 3 | | 10 - 7 = 3 |

Task 4.3.3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | T | O |  |  | H | T | O |  |  | H | T | O |
|  | 7 | 8 | 2 |  |  | 9 | 7 | 9 |  |  | 7 | 8 | 1 |
| - | 1 | 3 | 0 |  | - | 3 | 6 | 0 |  | - | 1 | 6 | 5 |
| - | 3 | 8 | 0 |  | - | 4 | 9 | 8 |  | - | 2 | 4 | 9 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | T | O |  |  | H | T | O |  |  | H | T | O |
|  | 9 | 5 | 3 |  |  | 9 | 9 | 8 |  |  | 8 | 0 | 7 |
| - | 2 | 4 | 4 |  | - | 2 | 7 | 5 |  | - | 3 | 7 | 3 |
| - | 2 | 8 | 4 |  | - | 4 | 1 | 3 |  | - | 2 | 1 | 5 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. Multiplication

You have in your wallet these coins How much money is that in total?  
  
You calculate 2 + 2 + 2 + 2 + 2 = 10.  
  
How many 2 Euro coins do you have? Five, so you've got 5 times 2 euros.   
The bill 2 + 2 + 2 + 2 + 2 we can therefore also write briefly in the form 5 - 2. And what is   
5 - 2? Calculate it by writing the 2 times one behind the other and adding them up.   
5 • 2 = 2 + 2 + 2 + 2 + 2 = 10.  
Painting, mathematically speaking we say multiplication, is the short form of addition. Imagine you would have to write the following:   
3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3   
It's a lot shorter than that:   
15 • 3.   
The result is the same as with the addition, namely 45.   
Instead of always writing down 6 + 6 + 6 + 6 + 6 + 6 for 5 - 6, it's best to learn the small multiplication tables by heart.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 2 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| 3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| 4 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |
| 5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| 6 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 |
| 7 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 |
| 8 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 |
| 9 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 |
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

4.0.1. Task

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | ∙ | 1 | = |  |  | 6 | ∙ | 2 | = |  |
| 4 | ∙ | 1 | = |  |  | 1 | ∙ | 3 | = |  |
| 1 | ∙ | 9 | = |  |  | 7 | ∙ | 2 | = |  |
| 1 | ∙ | 7 | = |  |  | 5 | ∙ | 3 | = |  |
| 2 | ∙ | 1 | = |  |  | 3 | ∙ | 3 | = |  |
| 8 | ∙ | 1 | = |  |  | 2 | ∙ | 7 | = |  |
| 7 | ∙ | 3 | = |  |  | 8 | ∙ | 2 | = |  |
| 7 | ∙ | 1 | = |  |  | 1 | ∙ | 6 | = |  |
| 8 | ∙ | 1 | = |  |  | 6 | ∙ | 3 | = |  |
| 4 | ∙ | 2 | = |  |  | 2 | ∙ | 7 | = |  |

* 1. Multiplication by tens

Numbers, which have a 0 from the second place on are called tens. Ten numbers are for example 20, 300, 4000, 50000 and so on.  
Let us look at an example.  
2 • 10 = 20  
2 • 100 = 200  
2 • 1000 = 2000  
You can see the rule quite well here:  
When multiplying by a tens number, as many zeros are appended as the tens number has zeros.

Task 4.1.1.  
4 • 10 = 7 • 100 = 9 • 100 = 13 • 10 =  
43 • 100 = 57 • 100 = 67 • 1000 = 89 • 1000 =

In this way you can also calculate tasks of the type 2 • 20. You can easily calculate with them if you take them apart.   
2 • 20 can be divided into 2 - 2 - 10. First you calculate 2 • 2 and multiply this result by   
10 🡪 2 • 2 • 10 = 4 • 10 = 40.  
You do the same with even larger numbers.  
40 • 3000 = 40 • 3 • 1000 = 120 • 1000 = 120000. 3 zeros are simply appended to the 120.

Task 4.1.2.  
3 • 30 = 3 • 3 • \_\_\_ = 9 • \_\_\_\_ =   
9 • 200 = \_\_\_ • \_\_\_\_ • \_\_\_\_ = \_\_\_\_ • \_\_\_\_ = \_\_\_\_\_\_\_   
6 • 300 = \_\_\_ • \_\_\_\_ • \_\_\_\_ = \_\_\_\_ • \_\_\_\_ = \_\_\_\_\_\_\_  
9 • 4000 = \_\_\_ • \_\_\_\_ • \_\_\_\_ = \_\_\_\_ • \_\_\_\_ = \_\_\_\_\_\_\_  
11 • 5000 = \_\_\_ • \_\_\_\_ • \_\_\_\_ = \_\_\_\_ • \_\_\_\_ = \_\_\_\_\_\_\_  
20 • 12000 = \_\_\_ • \_\_\_\_ • \_\_\_\_ = \_\_\_\_ • \_\_\_\_ = \_\_\_\_\_\_\_

1. Division

You have 10 sweets and you want to divide them among 5 children so that everyone gets the same amount. How do you proceed? You make five equal piles. Then you put 2 candies on top of each.

In a calculation, it would look like this:

10 : 5 = 2

ten divided by five equals two

Suppose you were to collect candy from all the children. Then you would get 5 - 2 sweets back, so again the 10 from the beginning.

The mathematical term for dividing is dividing. The numbers also get their own names. So you can remember them:

Dividend : divisor = quotient

You see in the example of just now that division is the inverse of multiplication.

Wenn , then   
So to solve division tasks it is important to know the basics well!

Task 6.0.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | : | 4 | = | 6 |  | 64 | : | 8 | = | 8 |
| 6 | : | 1 | = | 6 |  | 20 | : | 5 | = | 4 |
| 12 | : | 2 | = | 6 |  | 70 | : | 10 | = | 7 |
| 54 | : | 6 | = | 9 |  | 70 | : | 10 | = | 7 |
| 24 | : | 4 | = | 6 |  | 16 | : | 8 | = | 2 |
| 12 | : | 6 | = | 2 |  | 45 | : | 9 | = | 5 |
| 10 | : | 1 | = | 10 |  | 16 | : | 4 | = | 4 |
| 42 | : | 6 | = | 7 |  | 21 | : | 3 | = | 7 |
| 24 | : | 8 | = | 3 |  | 50 | : | 5 | = | 10 |
| 15 | : | 5 | = | 3 |  | 35 | : | 7 | = | 5 |

* 1. Division by tens

Just like with multiplication, the zeros are ignored for the time being. However, it should be noted here that for each zero in the divisor we also delete one zero in the dividend and then calculate.  
4000 : 100 then becomes 40~~00~~ : 1~~00~~ = 40  
54000 : 10 then becomes 5400~~0~~ : 1~~0~~ = 5400  
1500000 : 5000 then becomes 1500~~000~~ : 5~~000~~. If you leave out the remaining zeros in your mind, you only calculate 15 : 5 = 3. Now you start again with as many zeros as you thought 00 and get the result 300.

Task 6.1.1.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 25000000 | : | 5000 | = \_\_\_\_\_\_\_\_\_\_\_\_ | | |
|  |  |  |  | | |
| 250000 | : | 50 | = \_\_\_\_\_\_\_\_\_\_\_\_ | | |
|  |  |  |  | | |
| 320000 | : | 40 | = \_\_\_\_\_\_\_\_\_\_\_\_ | | |
|  |  |  |  | | |
| 15000000 | : | 5000 | = \_\_\_\_\_\_\_\_\_\_\_\_ | | |
|  |  |  |  | | |
| 600000 | : | 300 | = \_\_\_\_\_\_\_\_\_\_\_\_ | | |
| 360000 | : | 40 | = |  |
|  |  |  |  |  |
| 800000 | : | 400 | = |  |
|  |  |  |  |  |
| 600000 | : | 300 | = |  |
|  |  |  |  |  |
| 8000000 | : | 2000 | = |  |
|  |  |  |  |  |
| 4200000 | : | 700 | = |  |

* 1. Division with remainder

Would you like to divide 10 sweets equally among 3 people Then you get three each and one is left. It's similar when you calculate 25:7. The 7 fits 3 times into 25 and there remains a remainder of 4. We write 25 : 7 = 3 remainder 4. Usual is also the short spelling   
25 : 7 = 3 R 4.  
Note: The remainder is never greater than the divisor!

Task 6.2.1.  
13 : 2 = 6 R 1 15 : 6 = 7 R \_\_\_ 21 : 4 = \_\_\_\_\_\_\_  
34 : 9 = \_\_\_\_\_\_\_ 43 : 8 = \_\_\_\_\_\_\_ 57 : 9 = \_\_\_\_\_\_\_  
65 : 7 = \_\_\_\_\_\_\_ 84 : 9 = \_\_\_\_\_\_\_ 94 : 10 = \_\_\_\_\_\_

# 7. Half-written multiplication and division

## 7.1. Half-written multiplication

To solve a task like 12 - 3 we have to do a little "magic". We divide the 12 into 10 + 2, so the task 12 - 3 becomes the two tasks 10 - 3 and 2 - 3.   
And what do we do with the respective results? Since we have broken down the 12 into   
10 + 2, the partial results are now also added. 12 • 3   
= 10 • 3 + 2 • 3  
= 30 + 6  
= 36  
We break down the difficult task into several easy ones and then add up the partial results.

|  |  |
| --- | --- |
| 23 • 4 |  |
| 20 • 4 | = 80 |
| 3 • 4 | = 6 |
| 23 • 4 | = 86 |

Task 7.1.1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 13 • 5 |  |  | 24 • 6 |  |
| 10 • 5 | = |  | 20 • | = |
| 3 • 5 | = |  | 4 • | = |
| 13 • 5 | = |  | 24 • | = |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 42 • 3 |  |  | 57 • 4 |  |
|  | = |  |  | = |
|  | = |  |  | = |
|  | = |  |  | = |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 62 • 8 |  |  | 97 • 7 |  |
|  | = |  |  | = |
|  | = |  |  | = |
|  | = |  |  | = |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 82 • 8 |  |  | 57 • 9 |  |
|  | = |  |  | = |
|  | = |  |  | = |
|  | = |  |  | = |

## 7.2 Half-written division

Even when dividing larger numbers, we can break them down to simplify the calculation.

65 : 5 can be divided into 50 : 5 and 15 : 5, and the partial results are added together again.

65 : 5

= 50 : 5 + 15 : 5

= 10 + 3

= 13

In this way you can easily solve even the most difficult tasks.

222 : 3

= 210 : 3 + 12 : 3

= 70 + 4

= 74

The following example shows a different notation. After this notation we will continue to calculate.

|  |  |
| --- | --- |
| 176 : 4 = | |
| 160 : 4 = | 40 |
| 16 : 4 = | 4 |
| 176 : 4 = | 44 |

In both examples you can see that you are looking for a number that is smaller than the dividend and that you know is divisible by the divisor.  
Task 7.2.1.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 332 : 4 = | |  | 270 : 6 = | |  | 294 : 7 = | |
| 320 : 4 = |  |  | 240 : 6 = |  |  | 280 : = |  |
| 12 : 4 = |  |  | 30 : 6 = |  |  | 14 : = |  |
| 332 : 4 = |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 390 : 6 = | |  | 297 : 9 = | |  | 208 : 8 = | |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 584 : 8 = | |  | 114 : 3 = | |  | 282 : 6 = | |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 185 : 5 = | |  | 644 : 7 = | |  | 152 : 4 = | |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

## 7.3 Half-written division with remainder

You have already learned that there are numbers that cannot be divided by others without remainder. We now want to divide by remainder in half.

|  |  |
| --- | --- |
| 187 : 5 = | |
| 150 : 5 = | 30 |
| 37 : 5 = | 5 R 2 |
| 187 : 5 = | 35 R 2 |

Task 7.3.1.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 309 : 6 = | |  | 292 : 9 = | |  | 163 : 8 = | |
| 300 : 6 = | 50 |  | 270 : 9 = |  |  |  |  |
| 9 : 6 = | 1 R 3 |  | 22 : 9 = | 2 R 4 |  |  |  |
| 309 : 6 = | 51 R 3 |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 160 : 3 = | |  | 211 : 4 = | |  | 503 : 8 = | |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 263 : 5 = | |  | 151 : 2 = | |  | 455 : 6 = | |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 322 : 9 = | |  | 191 : 4 = | |  | 601 : 7 = | |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

1. Written multiplication and division
   1. Written Multiplication

If you want to multiply numbers by several digits, you have to do this in writing.  
You multiply the first factor by one, tens, hundreds, etc. of the second factor and add the partial results again.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 7 |  | 1 | 2 | = | 5 | 6 | 4 |  |
|  |  | 4 | 7 |  |  |  |  |  |  |
|  |  | 0 | 9 | 4 |  |  |  |  |  |
|  | 0 | 1 |  |  |  |  |  |  |  |
|  |  | 5 | 6 | 4 |  |  |  |  |  |

It is important that you write among each other in a job-appropriate manner. If you multiply by the ones you start writing the result under the ones etc.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 3 |  | 2 | 7 | = | 8 | 9 | 1 |  |
|  |  | 6 | 6 |  |  |  |  |  |  |
|  |  | 2 | 3 | 1 |  |  |  |  |  |
|  | 0 | 0 |  |  |  |  |  |  |  |
|  |  | 8 | 9 | 1 |  |  |  |  |  |

Aufgabe 8.1.1.

FEHLT

* 1. Written division

If the divisor has two or more digits, we can’t continue with the semi-written dividing.  
Let's take a look at an easy example to start with.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | 5 | 4 | : | 6 | = | 9 |
| **-** | 5 | 4 | 6 • 9 = 54 | | | |
|  |  | 0 |  |  |  |  |

We calculate: 54 : 6 = 9 The partial result 9 is multiplied by the divisor and subtracted from 54. In the end, the result must be 0.

Task 8.2.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | : | 3 | = | 4 |  |  |  | 4 | 5 | : | 9 | = | 5 |
| - | 1 | 2 |  |  |  |  |  |  | - |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2 | 0 | : | 5 | = |  |  |  |  | 3 | 2 | : | 4 | = |  |
| - |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 6 | : | 4 | = |  |  |  |  | 5 | 6 | : | 7 | = |  |
| - |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

It becomes more difficult if the dividend has three digits. However, the procedure remains the same.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 9 | 6 | : | 7 | = | 2 | 8 |
| **-** | 1 | 4 |  | 2 • 7 = 14 | | | | |
|  |  | 5 | 6 |  |  |  |  |  |
|  | **-** | 5 | 6 | 8 • 7 = 56 | | | | |
|  |  |  | 0 |  |  |  |  |  |

We calculate 19 : 7 = 2. Then we calculate 2 • 7 and subtract the result from 19. Then you move the 6 behind the 5 and calculate 56 : 7 = 8. Now 8 • 7 is calculated again and subtracted from 56. If zero comes out at the end, we have calculated correctly.

Task 8.2.2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2 | 7 | 3 | : | 7 | = | 3 | 9 |  |  |  | 1 | 9 | 8 | : | 6 | = | 3 | 3 |
| - | 2 | 1 |  |  |  |  |  |  |  |  | - | 1 | 8 |  |  |  |  |  |  |
|  |  | 6 | 3 |  |  |  |  |  |  |  |  |  | 1 | 8 |  |  |  |  |  |
|  | - | 6 | 3 |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |
|  |  |  | 0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 6 | 1 | : | 7 | = | 2 |  |  |  |  | 2 | 1 | 0 | : | 6 | = |  |  |
| - | 1 | 4 |  |  |  |  |  |  |  |  | - | 1 | 8 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | - |  |  |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2 | 3 | 1 | : | 7 | = |  |  |  |  |  | 1 | 8 | 5 | : | 5 | = |  |  |
| - |  |  |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | - |  |  |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 5 | 6 | : | 4 | = |  |  |  |  |  | 1 | 7 | 5 | : | 5 | = |  |  |
| - |  |  |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | - |  |  |  |  |  |  |  |  |  |  | - |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. Rounds
2. Calculate with decimal numbers
3. Computational rules
4. Geometry

1. Solution

Solution zu 2.0.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 |  | 1 | 1 | 1 | 1 | 1 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  | 1 | 1 | 1 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  | 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |

Solution zu 2.0.2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |

Solution zu 2.0.3.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| 3 | 5 | 2 | 4 | 1 | 6 |

Solution zu 2.0.4.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Vorgänger | Zahl | Nachfolger |  | Vorgänger | Zahl | Nachfolger |
| 4 | 5 | 6 |  | 11 | 12 | 13 |
| 6 | 7 | 8 |  | 17 | 18 | 19 |
| 8 | 9 | 10 |  | 22 | 23 | 24 |
| 3 | 4 | 5 |  | 53 | 54 | 55 |

Solution zu 3.1.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | + | 6 | = | 9 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 2 | + | 4 | = | 6 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | + | 1 | = | 2 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 3 | + | 3 | = | 6 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 7 | + | 2 | = | 9 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | + | 6 | = | 7 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 3 | + | 1 | = | 4 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | + | 1 | = | 2 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 4 | + | 2 | = | 6 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 5 | + | 2 | = | 7 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

Solution zu 3.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | + | 6 | = | 8 |  | 2 | + | 8 | = | 10 |
| 6 | + | 2 | = | 8 |  | 6 | + | 4 | = | 10 |
| 5 | + | 1 | = | 6 |  | 2 | + | 3 | = | 5 |
| 4 | + | 6 | = | 10 |  | 6 | + | 3 | = | 9 |
| 6 | + | 4 | = | 10 |  | 6 | + | 3 | = | 9 |
| 2 | + | 7 | = | 9 |  | 1 | + | 8 | = | 9 |
| 1 | + | 5 | = | 6 |  | 5 | + | 1 | = | 6 |
| 2 | + | 5 | = | 7 |  | 8 | + | 2 | = | 10 |
| 5 | + | 4 | = | 9 |  | 7 | + | 3 | = | 10 |

Solution zu 3.2.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | - | 1 | = | 3 |  | 4 | - | 3 | = | 1 |
| 10 | - | 7 | = | 3 |  | 4 | - | 1 | = | 3 |
| 5 | - | 3 | = | 2 |  | 4 | - | 3 | = | 1 |
| 8 | - | 6 | = | 2 |  | 10 | - | 9 | = | 1 |
| 5 | - | 2 | = | 3 |  | 6 | - | 1 | = | 5 |
| 2 | - | 1 | = | 1 |  | 6 | - | 1 | = | 5 |
| 10 | - | 3 | = | 7 |  | 4 | - | 2 | = | 2 |
| 4 | - | 2 | = | 2 |  | 9 | - | 5 | = | 4 |
| 2 | - | 1 | = | 1 |  | 8 | - | 6 | = | 2 |
| 5 | - | 3 | = | 2 |  | 1 | - | 1 | = | 0 |

Solution zu 3.2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 20 | > | 19 |  | 17 | < | 19 |
| 7 | > | 5 |  | 8 | > | 4 |
| 18 | > | 3 |  | 14 | < | 15 |
| 8 | < | 11 |  | 13 | > | 11 |
| 11 | < | 17 |  | 8 | > | 6 |
| 7 | > | 6 |  | 1 | < | 8 |
| 6 | > | 4 |  | 3 | < | 20 |
| 4 | < | 6 |  | 4 | = | 4 |

Solution zu 3.2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | + | 1 | = | 12 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 | + | 10 | = | 17 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 | + | 8 | = | 16 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | + | 11 | = | 20 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | + | 2 | = | 18 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 | 1 | 1 |  | 1 | 1 | 1 |  |  |

Solution zu 3.3.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | + | 8 | = | 10 |  | 66 | + | 4 | = | 70 |
|  |  |  |  |  |  |  |  |  |  |  |
| 72 | + | 8 | = | 80 |  | 87 | + | 3 | = | 90 |
|  |  |  |  |  |  |  |  |  |  |  |
| 38 | + | 2 | = | 40 |  | 75 | + | 5 | = | 80 |
|  |  |  |  |  |  |  |  |  |  |  |
| 27 | + | 3 | = | 30 |  | 4 | + | 6 | = | 10 |
|  |  |  |  |  |  |  |  |  |  |  |
| 46 | + | 4 | = | 50 |  | 59 | + | 1 | = | 60 |
|  |  |  |  |  |  |  |  |  |  |  |
| 4 | + | 6 | = | 10 |  | 2 | + | 8 | = | 10 |

Solution zu 3.3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 10 |  | 10 |  | 10 |
| 1 + 9 = 10 |  | 10 + 0 = 10 |  | 5 + 5 = 10 |
| 2 + 8 = 10 |  | 9 + 1 = 10 |  | 2 + 8 = 10 |
| 3 + 7 = 10 |  | 8 + 2 = 10 |  | 6 + 4 = 10 |
| 4 + 6 = 10 |  | 7 + 3 = 10 |  | 3 + 7 = 10 |

Solution zu 3.3.1.  
5 + 5 = 10 🡪 10 – 5 = 5 4 + 3 = 7 🡪 7 – 3 = 4   
5 + 4 = 9 🡪 9 – 4 = 5 1 + 4 = 5 🡪 5 – 4 = 1   
8 – 3 = 5 🡪 5 + 3 = 8 8 – 4 = 4 🡪 4 + 4 = 8  
9 – 3 = 6 🡪 6 + 3 = 9 5 – 3 = 2 🡪 2 + 3 = 5

Solution zu 3.4.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | + | 7 | = | 15 | + | 5 | + | 2 | = | 20 | + | 2 | = | 22 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | + | 4 | = | 9 | + | 1 | + | 3 | = | 10 | + | 3 | = | 13 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | + | 9 | = | 14 | + | 6 | + | 3 | = | 20 | + | 3 | = | 23 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | + | 8 | = | 5 | + | 5 | + | 3 | = | 10 | + | 3 | = | 13 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | + | 8 | = | 17 | + | 3 | + | 5 | = | 20 | + | 5 | = | 25 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | + | 8 | = | 14 | + | 6 | + | 2 | = | 20 | + | 2 | = | 22 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | + | 9 | = | 3 | + | 7 | + | 2 | = | 10 | + | 2 | = | 12 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | + | 8 | = | 3 | + | 7 | + | 1 | = | 10 | + | 1 | = | 11 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 | + | 9 | = | 4 | + | 6 | + | 3 | = | 10 | + | 3 | = | 13 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | + | 8 | = | 16 | + | 4 | + | 4 | = | 20 | + | 4 | = | 24 |

Solution zu 3.5.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | + | 10 | = | 19 |  | 7 | + | 9 | = | 16 |
| 11 | + | 4 | = | 15 |  | 3 | + | 7 | = | 10 |
| 11 | + | 3 | = | 14 |  | 2 | + | 3 | = | 5 |
| 9 | + | 3 | = | 12 |  | 5 | + | 2 | = | 7 |
| 10 | + | 8 | = | 18 |  | 14 | + | 5 | = | 19 |
| 14 | + | 5 | = | 19 |  | 11 | + | 7 | = | 18 |
| 9 | + | 3 | = | 12 |  | 16 | + | 4 | = | 20 |
| 18 | + | 1 | = | 19 |  | 2 | + | 5 | = | 7 |
| 1 | + | 6 | = | 7 |  | 7 | + | 5 | = | 12 |
| 8 | + | 10 | = | 18 |  | 6 | + | 14 | = | 20 |

Solution zu 3.9.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | - | 9 | = | 13 | - | 3 | - | 6 | = | 10 | - | 6 | = | 4 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | - | 9 | = | 17 | - | 7 | - | 2 | = | 10 | - | 2 | = | 8 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 | - | 9 | = | 11 | - | 1 | - | 8 | = | 10 | - | 8 | = | 2 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 14 | - | 8 | = | 14 | - | 4 | - | 4 | = | 10 | - | 4 | = | 6 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | - | 9 | = | 18 | - | 8 | - | 1 | = | 10 | - | 1 | = | 9 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | - | 8 | = | 12 | - | 2 | - | 6 | = | 10 | - | 6 | = | 4 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | - | 9 | = | 18 | - | 8 | - | 1 | = | 10 | - | 1 | = | |  | | --- | | 9 | |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 18 | - | 9 | = | 18 | - | 8 | - | 1 | = | 10 | - | 1 | = | 9 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 13 | - | 5 | = | 13 | - | 3 | - | 2 | = | 10 | - | 2 | = | 8 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | - | 6 | = | 15 | - | 5 | - | 1 | = | 10 | - | 1 | = | 9 |

Solution zu 3.10.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | - | 5 | = | 7 |  | 6 | - | 4 | = | 2 |
| 4 | - | 2 | = | 2 |  | 10 | - | 2 | = | 8 |
| 18 | - | 7 | = | 11 |  | 23 | - | 3 | = | 20 |
| 13 | - | 3 | = | 10 |  | 17 | - | 6 | = | 11 |
| 2 | - | 1 | = | 1 |  | 17 | - | 2 | = | 15 |
| 6 | - | 3 | = | 3 |  | 24 | - | 5 | = | 19 |
| 9 | - | 6 | = | 3 |  | 15 | - | 6 | = | 9 |
| 8 | - | 7 | = | 1 |  | 17 | - | 3 | = | 14 |
| 3 | - | 1 | = | 2 |  | 5 | - | 2 | = | 3 |
| 9 | - | 3 | = | 6 |  | 13 | - | 6 | = | 7 |

Solution zu 4.1.1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Zahl | Tausender | Hunderter | Zehner | Einer |
|  | T | H | Z | E |
| 8 |  |  |  | 8 |
| 20 |  |  | 2 | 0 |
| 34 |  |  | 3 | 4 |
| 55 |  |  | 5 | 5 |
| 200 |  | 2 | 0 | 0 |
| 734 |  | 7 | 3 | 4 |
| 3000 | 3 | 0 | 0 | 0 |
| 4254 | 4 | 2 | 5 | 4 |

Solution zu Aufgabe 4.1.2.  
Wie heißen die Zahlen?  
3H + 2Z + 4E = 300 + 20 + 5 = 324  
2H + 5Z + 3E = 200 + 50 + 3 = 253  
3H + 6Z + 7E = 300 + 60 + 7 = 367  
5H + 0Z + 9E = 500 + 0 + 9 = 509  
9H + 4Z + 0E = 900 + 40 + 0 = 940

Solution zu 4.2.1.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  | Z | E |  |  | Z | E |  |  | Z | E |
|  | 6 | 7 |  |  | 3 | 6 |  |  | 5 | 5 |  |  | 7 | 1 |
| + | 7 | 3 |  | + | 5 | 0 |  | + | 5 | 3 |  | + | 6 | 6 |
| 1 | 1 | 0 |  |  |  | 0 |  | 1 |  | 0 |  | 1 |  | 0 |
| 1 | 4 | 0 |  |  | 8 | 6 |  | 1 | 0 | 8 |  | 1 | 3 | 7 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  | Z | E |  |  | Z | E |  |  | Z | E |
|  | 4 | 8 |  |  | 8 | 6 |  |  | 5 | 1 |  |  | 4 | 0 |
| + | 9 | 8 |  | + | 6 | 1 |  | + | 5 | 6 |  | + | 3 | 1 |
| 1 | 1 | 0 |  | 1 |  | 0 |  | 1 |  | 0 |  |  |  | 0 |
| 1 | 4 | 6 |  | 1 | 4 | 7 |  | 1 | 0 | 7 |  |  | 7 | 1 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  |  | Z | E |  |  |  | Z | E |  |  |  | Z | E |
|  | 4 | 8 |  |  |  | 2 | 8 |  |  |  | 7 | 0 |  |  |  | 7 | 7 |
| + | 4 | 8 |  |  | + | 4 | 3 |  |  | + | 9 | 7 |  |  | + | 4 | 5 |
| + | 3 | 6 |  |  | + | 4 | 1 |  |  | + | 2 | 2 |  |  | + | 1 | 1 |
| 1 | 2 | 0 |  |  | 1 | 1 | 0 |  |  | 1 |  | 0 |  |  | 1 | 1 | 0 |
| 1 | 3 | 2 |  |  | 1 | 1 | 2 |  |  | 1 | 8 | 9 |  |  | 1 | 3 | 3 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  |  | Z | E |  |  |  | Z | E |  |  |  | Z | E |
|  | 9 | 5 |  |  |  | 7 | 8 |  |  |  | 4 | 3 |  |  |  | 2 | 0 |
| + | 5 | 6 |  |  | + | 1 | 8 |  |  | + | 5 | 2 |  |  | + | 7 | 4 |
| + | 8 | 7 |  |  | + | 5 | 3 |  |  | + | 4 | 6 |  |  | + | 6 | 0 |
| 2 | 1 | 0 |  |  | 1 | 1 | 0 |  |  | 1 | 1 | 0 |  |  | 1 |  | 0 |
| 2 | 3 | 8 |  |  | 1 | 4 | 9 |  |  | 1 | 4 | 1 |  |  | 1 | 5 | 4 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | Z | E |  |  | H | Z | E |  |  | H | Z | E |
|  | 3 | 0 | 4 |  |  | 1 | 4 | 1 |  |  | 1 | 5 | 4 |
| + | 1 | 8 | 8 |  | + | 5 | 3 | 7 |  | + | 7 | 2 | 5 |
| + | 1 | 3 | 8 |  | + | 1 | 2 | 2 |  | + | 5 | 3 | 7 |
|  | 1 | 2 |  |  |  | 1 | 1 |  |  | 1 | 1 | 1 |  |
|  | 6 | 3 | 0 |  |  | 8 | 0 | 0 |  | 1 | 4 | 1 | 6 |

Solution zu 4.3.2.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  |  | Z | E |  |  |  | Z | E |  |  |  | Z | E |
|  | 3 | 8 |  |  |  | 6 | 6 |  |  |  | 7 | 4 |  |  |  | 9 | 3 |
| - | 2 | 3 |  |  | - | 5 | 3 |  |  | - | 4 | 3 |  |  | - | 5 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 1 | 5 |  |  |  | 1 | 3 |  |  |  | 3 | 1 |  |  |  | 4 | 2 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Z | E |  |  |  | Z | E |  |  |  | Z | E |  |  |  | Z | E |
|  | 8 | 7 |  |  |  | 8 | 6 |  |  |  | 8 | 4 |  |  |  | 8 | 7 |
| - | 2 | 3 |  |  | - | 4 | 2 |  |  | - | 2 | 5 |  |  | - | 5 | 5 |
|  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |  |  |
|  | 6 | 4 |  |  |  | 4 | 4 |  |  |  | 5 | 9 |  |  |  | 3 | 2 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | Z | E |  |  | H | Z | E |  |  | H | Z | E |
|  | 8 | 6 | 8 |  |  | 7 | 5 | 7 |  |  | 9 | 0 | 4 |
| - | 3 | 5 | 1 |  | - | 4 | 8 | 0 |  | - | 1 | 5 | 0 |
|  |  |  |  |  |  | 1 |  |  |  |  | 1 |  |  |
|  | 5 | 1 | 7 |  |  | 2 | 7 | 7 |  |  | 7 | 5 | 4 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | Z | E |  |  | H | Z | E |  |  | H | Z | E |
|  | 8 | 5 | 7 |  |  | 7 | 7 | 6 |  |  | 8 | 3 | 9 |
| - | 4 | 4 | 2 |  | - | 4 | 7 | 4 |  | - | 1 | 3 | 2 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 4 | 1 | 5 |  |  | 3 | 0 | 2 |  |  | 7 | 0 | 7 |

Solution zu 4.3.2.   
40 – 4 – 11 – 5 = 40 – (\_\_\_ + \_\_\_ + \_\_\_) = 40 – \_\_\_ = \_\_\_

46 – 14 – 4 – 9 = 46 – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_ – \_\_\_ = \_\_\_

55 – 14 – 3 – 15 = \_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_ – \_\_\_ = \_\_\_

100 – 10 – 30 – 20 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

120 – 12 – 33 – 20 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

234 – 110 – 35 – 26 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

534 – 234 – 135 – 86 = \_\_\_ – (\_\_\_ + \_\_\_ + \_\_\_) = \_\_\_ – \_\_\_ = \_\_\_

Solution zu 4.3.3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | Z | E |  |  | H | Z | E |  |  | H | Z | E |
|  | 7 | 8 | 2 |  |  | 9 | 7 | 9 |  |  | 7 | 8 | 1 |
| - | 1 | 3 | 0 |  | - | 3 | 6 | 0 |  | - | 1 | 6 | 5 |
| - | 3 | 8 | 0 |  | - | 4 | 9 | 8 |  | - | 2 | 4 | 9 |
|  | 1 |  |  |  |  | 1 |  |  |  |  | 1 | 2 |  |
|  | 2 | 7 | 2 |  |  | 1 | 2 | 1 |  |  | 3 | 6 | 7 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | H | Z | E |  |  | H | Z | E |  |  | H | Z | E |
|  | 9 | 5 | 3 |  |  | 9 | 9 | 8 |  |  | 8 | 0 | 7 |
| - | 2 | 4 | 4 |  | - | 2 | 7 | 5 |  | - | 3 | 7 | 3 |
| - | 2 | 8 | 4 |  | - | 4 | 1 | 3 |  | - | 2 | 1 | 5 |
|  | 1 | 1 |  |  |  |  |  |  |  |  | 1 | 1 |  |
|  | 4 | 2 | 5 |  |  | 3 | 1 | 0 |  |  | 2 | 1 | 9 |

Solution zu 5.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | ∙ | 1 | = | 8 |  | 6 | ∙ | 2 | = | 12 |
| 4 | ∙ | 1 | = | 4 |  | 1 | ∙ | 3 | = | 3 |
| 1 | ∙ | 9 | = | 9 |  | 7 | ∙ | 2 | = | 14 |
| 1 | ∙ | 7 | = | 7 |  | 5 | ∙ | 3 | = | 15 |
| 2 | ∙ | 1 | = | 2 |  | 3 | ∙ | 3 | = | 9 |
| 8 | ∙ | 1 | = | 8 |  | 2 | ∙ | 7 | = | 14 |
| 7 | ∙ | 3 | = | 21 |  | 8 | ∙ | 2 | = | 16 |
| 7 | ∙ | 1 | = | 7 |  | 1 | ∙ | 6 | = | 6 |
| 8 | ∙ | 1 | = | 8 |  | 6 | ∙ | 3 | = | 18 |
| 4 | ∙ | 2 | = | 8 |  | 2 | ∙ | 7 | = | 14 |

Solution zu   
4 • 10 = 40 7 • 100 = 700 9 • 100 = 900 13 • 10 = 130  
43 • 100 = 4300 57 • 100 = 5700 67 • 1000 = 67000 89 • 1000 = 89000

Solution zu   
3 • 30 = 3 • 3 • 10 = 9 • 10 = 900   
9 • 200 = 9 • 2 • 100 = 18 • 100 = 1800   
6 • 300 = 6 • 3 • 100 = 18 • 100 = 1800  
9 • 4000 = 9 • 4 • 1000 = 36 • 1000 = 36000  
11 • 5000 = 11 • 5 • 1000 = 55 • 1000 = 55000  
20 • 12000 = 20 • 12 • 1000 = 240 • 1000 = 240000

Solution zu 6.1.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | : | 4 | = | 6 |  | 64 | : | 8 | = | 8 |
| 6 | : | 1 | = | 6 |  | 20 | : | 5 | = | 4 |
| 12 | : | 2 | = | 6 |  | 70 | : | 10 | = | 7 |
| 54 | : | 6 | = | 9 |  | 70 | : | 10 | = | 7 |
| 24 | : | 4 | = | 6 |  | 16 | : | 8 | = | 2 |
| 12 | : | 6 | = | 2 |  | 45 | : | 9 | = | 5 |
| 10 | : | 1 | = | 10 |  | 16 | : | 4 | = | 4 |
| 42 | : | 6 | = | 7 |  | 21 | : | 3 | = | 7 |
| 24 | : | 8 | = | 3 |  | 50 | : | 5 | = | 10 |
| 15 | : | 5 | = | 3 |  | 35 | : | 7 | = | 5 |

Solution zu   
13 : 2 = 6 R 1 15 : 6 = 7 R 1 21 : 4 = 5 R 1  
34 : 9 = 3 R 7 43 : 8 = 5 R 3 57 : 9 = 6 R 3  
65 : 7 = 9 R 2 84 : 9 = 9 R 3 94 : 10 = 9 R 4

Solution zu 7.1.1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 13 • 5 |  |  | 24 • 6 |  |
| 10 • 5 | = 50 |  | 20 • 6 | = 80 |
| 3 • 5 | = 15 |  | 4 • 6 | = 24 |
| 13 • 5 | = 65 |  | 24 • 6 | = 104 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 42 • 3 |  |  | 57 • 4 |  |
| 40 • 3 | = 120 |  | 50 • 4 | = 200 |
| 2 • 3 | = 6 |  | 7 • 4 | = 28 |
| 42 • 3 | = 126 |  | 57 • 4 | = 228 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 62 • 8 |  |  | 97 • 7 |  |
| 60 • 8 | = 480 |  | 90 • 7 | = 630 |
| 2 • 8 | = 16 |  | 7 •7 | = 49 |
| 62 • 8 | = 496 |  | 97 • 7 | = 679 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 82 • 8 |  |  | 57 • 9 |  |
| 80 • 8 | = 640 |  | 50 • 9 | = 450 |
| 2 • 8 | = 16 |  | 7 • 9 | = 63 |
| 82 • 8 | = 656 |  | 57 • 9 | = 513 |

Solution zu 7.2.1.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 332 : 4 = | |  | 270 : 6 = | |  | 294 : 7 = | |
| 320 : 4 = | 80 |  | 240 : 6 = | 40 |  | 280 : = | 40 |
| 12 : 4 = | 3 |  | 30 : 6 = | 5 |  | 14 : = | 2 |
| 332 : 4 = | 83 |  | 270 : 6 = | 45 |  | 294 : 7 | 42 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 390 : 6 = | |  | 297 : 9 = | |  | 208 : 8 = | | |
| 360 : 6 = | 60 |  | 270 : 9 = | 30 |  | 160 : 8 = | 20 |
| 30 : 6 = | 5 |  | 27 : 9 = | 3 |  | 48 : 8 = | 6 |
| 390 : 6 = | 65 |  | 297 : 9 = | 33 |  | 208 : 8 = | 26 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 584 : 8 = | |  | 114 : 3 = | |  | 282 : 6 = | | |
| 560 : 8 = | 70 |  | 90 : 3 = | 30 |  | 240 : 6 = | 40 |
| 24 : 8 = | 3 |  | 24 : 3 = | 8 |  | 42 : 6 = | 7 |
| 584 : 8 = | 73 |  | 114 : 3 = | 38 |  | 282 : 6 = | 47 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 185 : 5 = | |  | 644 : 7 = | |  | 152 : 4 = | | |
| 150 : 5 = | 30 |  | 630 : 7 = | 90 |  | 120 : 4 = | 30 |
| 35 : 5 = | 7 |  | 14 : 7 = | 2 |  | 32 : 4 = | 8 |
| 185 : 5 = | 37 |  | 644 : 7 = | 92 |  | 152 : 4 = | 38 |

Solution zu

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 309 : 6 = | |  | 292 : 9 = | |  | 163 : 8 = | | |
| 300 : 6 = | 50 |  | 270 : 9 = | 30 |  | 160 : 8 = | 20 |
| 9 : 6 = | 1 R 3 |  | 22 : 9 = | 2 R 4 |  | 3 : 8 = | 0 R 3 |
| 309 : 6 = | 51 R 3 |  | 292 : 9 = | 32 R 4 |  | 163 : 8 = | 20 R 3 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 160 : 3 = | |  | 211 : 4 = | |  | 503 : 8 = | | |
| 150 : 3 = | 50 |  | 200 : 4 = | 50 |  | 480 : 8 = | 60 |
| 10 : 3 = | 3 R 1 |  | 11 : 4 = | 2 R 3 |  | 23 : 8 = | 2 R 7 |
| 160 : 3 = | 53 R 1 |  | 211 : 4 = | 52 R 3 |  | 503 : 8 = | 62 R 7 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 263 : 5 = | |  | 151 : 2 = | |  | 455 : 6 = | | |
| 250 : 5 = | 50 |  | 140 : 2 = | 70 |  | 420 : 6 = | 70 |
| 13 : 5 = | 2 R 3 |  | 11 : 2 = | 5 R 1 |  | 35 : 6 = | 5 R 5 |
| 263 : 5 = | 52 R 3 |  | 151 : 2 = | 75 R 1 |  | 455 : 6 = | 75 R 5 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 322 : 9 = | |  | 191 : 4 = | |  | 601 : 7 = | | |
| 270 : 9 = | 30 |  | 160 : 4 = | 40 |  | 560 : 7 = | 80 |
| 52 : 9 = | 5 R 7 |  | 31 : 4 = | 7 R 3 |  | 41 : 7 = | 5 R 6 |
| 322 : 9 = | 35 R 7 |  | 191 : 4 = | 47 R 3 |  | 601 : 7 = | 85 R 6 |

Solution zu

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 6 | 1 | : | 7 | = | 2 | 3 |  |  |  | 2 | 1 | 0 | : | 6 | = | 3 | 5 |
| - | 1 | 4 |  |  |  |  |  |  |  |  | - | 1 | 8 |  |  |  |  |  |  |
|  |  | 2 | 1 |  |  |  |  |  |  |  |  |  | 3 | 0 |  |  |  |  |  |
|  | - | 2 | 1 |  |  |  |  |  |  |  |  | - | 3 | 0 |  |  |  |  |  |
|  |  |  | 0 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2 | 3 | 1 | : | 7 | = | 3 | 3 |  |  |  | 1 | 8 | 5 | : | 5 | = | 3 | 7 |
| - | 2 | 1 |  |  |  |  |  |  |  |  | - | 1 | 5 |  |  |  |  |  |  |
|  |  | 2 | 1 |  |  |  |  |  |  |  |  |  | 3 | 5 |  |  |  |  |  |
|  | - | 2 | 1 |  |  |  |  |  |  |  |  | - | 3 | 5 |  |  |  |  |  |
|  |  |  | 0 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 5 | 6 | : | 4 | = | 3 | 9 |  |  |  | 1 | 7 | 5 | : | 5 | = | 3 | 5 |
| - | 1 | 2 |  |  |  |  |  |  |  |  | - | 1 | 5 |  |  |  |  |  |  |
|  |  | 3 | 6 |  |  |  |  |  |  |  |  |  | 2 | 5 |  |  |  |  |  |
|  | - | 3 | 6 |  |  |  |  |  |  |  |  | - | 2 | 5 |  |  |  |  |  |
|  |  |  | 0 |  |  |  |  |  |  |  |  |  |  | 0 |  |  |  |  |  |

1. http://mathe-abakus.fraedrich.de/abakus/abakuspics/abaeur/abaeur105.jpg [↑](#footnote-ref-1)