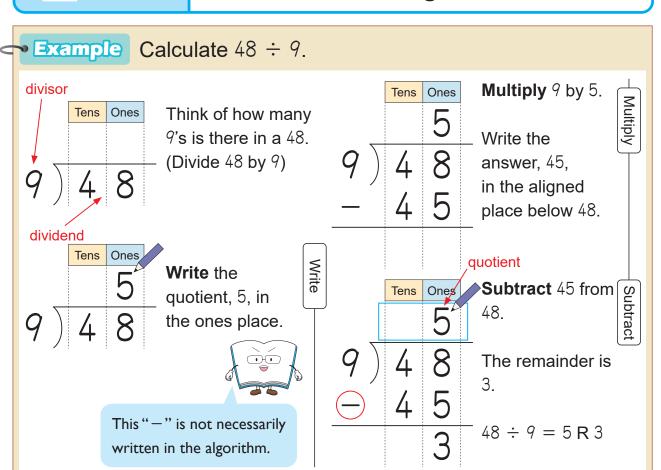
Division Algorithm-1

Division Algorithm (1)



Calculate the following division problems by using the algorithm.

$$137 \div 5$$

Tens Ones

Tens Ones

Tens Ones

Tens Ones

5)	3	7	
_				







a



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Division Algorithm-1

Dividing Multiples of 10 and 100

Example 1 Calculate 60 ÷ 3.

$$6 \div 3 = 2$$

$$\downarrow 10 \text{ times}$$

$$60 \div 3 = 20$$

If 6 sheets of paper are divided equally among 3 children, each child will get 2 sheets of paper $(6 \div 3 = 2)$.

Now 60 sheets will be divided equally among 3 children. We can think that 6 bundles of 10 sheets will be divided equally among 3 children.

1 Calculate the following division problems.

Example 2 Calculate 600 ÷ 3.

$$6 \div 3 = 2$$

$$\downarrow 100 \text{ times}$$

$$600 \div 3 = 200$$

600 sheets will be divided equally among 3 children. We can think of this as 6 bundles of 100 sheets will be divided equally among 3 children.

2 Calculate the following division problems.

Division Algorithm (2)

9

Tens Ones 2 3

3)69

6

6

9

9

0

9

9

Example

Calculate 69 ÷ 3.

Calculation of the tens

place

3)69

Divide 6 in the tens place by 3 (6 \div 3 = 2).

Write the quotient, 2, in the tens place.

3)69

Multiply 3 by 2 (3 \times 2 = 6).

(This is actually 3 \times 20.)

Write the answer, 6, in the aligned place below 6.



Subtract 6 from 6.

Write the answer, 0 in the aligned place below 6.

Although "0" is written to understand this calculation easily, this "0" is not necessarily written.

3)69 Calculation of the ones place

Bring down the 9 from the ones place.

Bring Divide 9 by 3 (9 \div 3 =

down

Write

Multiply

Subtract

Write the answer, 3, in the ones place.

Multiply 3 by 3 (3 \times 3 = 9). Write the answer, 9, in the aligned place below 9.

Subtract 9 from 9.

Write the answer, 0.

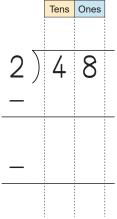
 $69 \div 3 = 23$

Calculate the following division problems by using the algorithm.

Write |

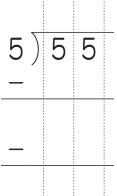






Tens Ones

Tens Ones











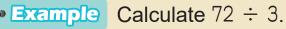


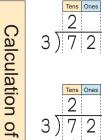






Division Algorithm (3)





the

tens

place

Divide 7 in the tens place by 3 (7 \div 3 = 2 R ∣) (This is actually $70 \div 3$).

Write the quotient, 2,

2 3)72 6

Multiply 3 by 2 (3 \times 2 = 6) (This is actually 3×20).

in the tens place.

Write the answer in the tens place.



Subtract 6 from 7. (This is actually 70 -

Write the answer in the tens place.



Tens Ones 2 4

7 2

1 2

2 4

2

6

Divide $|2 \text{ by } 3 (|2 \div 3|$ = 4).

Write the quotient, 4, in the ones place.

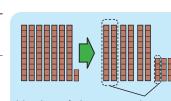
Write

Multiply

œ

Subtract

Multiply 3 by 4 ((3 \times 4 = 12).



Number of objects in each group 72 is divided into 60 and 12. Then 60 is divided by 3 and 12 is divided

2 6 2 Subtract |2 from |2.

 $72 \div 3 = 24$

Calculate the following division problems by using the algorithm.

Write

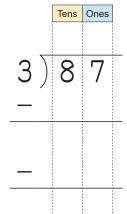
Subtract

Bring

down

Calculation of the ones place

 $75 \div 5$



96 ÷ 6

3	4	5	6	
7	8	9	9	

Division Algorithm (4)

Calculate 76 ÷ 3. Example

Tens Ones Calculation of the tens place 3)76 2

Divide 7 in the tens place by 3 (7 \div 3 = 2

Write the quotient, 2, in the tens place.

3)76 6

Multiply 3 by 2 (3 \times 2

(This is actually 3 \times 20.) Write the answer in

the tens place.



Subtract 6 from 7. (This is actually 70 -

Write the answer in the tens place.



Bring down the 6 from the ones place.

2 5 3)76 6 16 Calculation of the ones place

Write | Multiply

Subtract

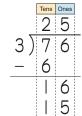
Bring down

Divide $16 \text{ by } 3 (16 \div 3)$ = 5 RI).

Write the quotient, 5, in the ones place.

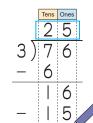
Write

Subtract



Multiply 3 by 5 (3 \times 2 = 6).

Write the answer in the aligned place.



Subtract 15 from 16. The remainder is |.

 $\div 3 = 25 \text{ R}$

Calculate the following division problems by using the algorithm.

$$179 \div 3$$

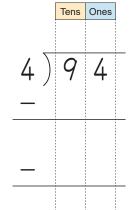
Ones

$$755 \div 2$$

3

7

 $1074 \div 5$



9	92	÷	8	

4

8

Division Algorithm (5)

Example

Calculate 83 ÷ 4.

1 Tens Ones 2 4)83 Calculation of the

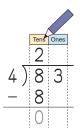
tens place

Divide 8 in the tens place by 4 $(8 \div 4 = 2).$

Tens Ones 4)83 8

Write the quotient, 2, in the tens place.

Multiply 4 by 2 $(4 \times 2 = 8).$ (This is actually $4 \times 20.$)



Subtract 8 from 8. (This is actually 80 - 80.) It is a 0.

Calculation of the ones place

Write

Multiply

Subtract

Bring down the 3 from the ones place.

Divide 3 by 4 (3 \div 4 = 0 R3).

Write the quotient, 0, in the ones place.

The remainder is

$$83 \div 4 = 20 \text{ R}3$$

Calculate the following division problems by using the algorithm.

 $92 \div 3 =$

 $41 \div 2 =$

3 83 ÷ 4=

Bring down

Tens Ones 9

4

Tens Ones

4)83

Tens Ones

 $4062 \div 3$

5 75 ÷ 7

6 98 ÷ 9

81 ÷ 2

8 54 ÷ 5

9 91 ÷ 3

 $1082 \div 4$

 $0065 \div 6$

7 8 5 6 9 1 **M** 12

Checking the Calculation

Calculate $76 \div 3$ and then check the answer. • Example



If we calculate $76 \div 3$ using the division algorithm, the answer is 25 RI.

$$\frac{76}{3} \times 25 + 1 = \frac{76}{76}$$

$$76 \div 3 = 25$$
 R

Check:

$$3 \times 25 + 1 = 76^{\circ}$$

Calculate the following and then check your answers.

Check

Check

Tens Ones

Tens Ones 3





$$76 \div 5$$

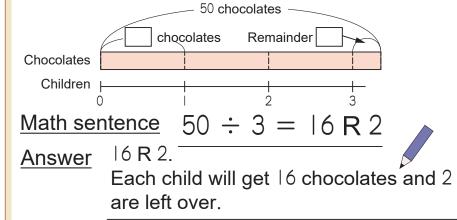
Check

Check	Check

Division Algorithm-1

Division Problems (1)

There are 50 chocolates. If 3 children share the chocolates equally, how many chocolates will each child get and how many will be left over?



	10110	01100	
		0	
3)	5	0	
_	3		
	2	0	
_		8	
		′)	

Tens Ones

Check

$$3 \times 16 + 2 = 50$$

There are 50 pieces of candy. If 4 girls share the candy equally, how many will each girl get, and how many will be left over?

Math sentence

Candy Dieces of candy Remainder

Girls 1 2 3 4

<u>Answer</u>

_)			
	_			
		:		
		i	i	
		!	!	:
				:
			:	
		i	i	i
		!	!	
			:	:
			:	:
		i	i	i
	_			
			!	
			!	
				_
				_
			!	
				:
		i	i	i

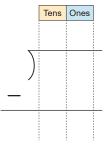
Tens Ones

Check

If an 85 cm ribbon is cut into pieces measuring 8 cm each, how many pieces can we make in total? How many cm of ribbon will be left over?

Math sentence

Answer



Division Algorithm-1

Division Algorithm (6)

2 0

2 3

3 4

4

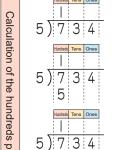
3 0

2 0

3 4

3 0

Example Calculate 734 ÷ 5.



5

2 3

1 4

5)734

2 3

2:0

| 4

5)734 - 5

3 4

- 5

Divide 7 by 5. **Write** the quotient, 1, in the hundreds place.

Multiply 5 by $| \cdot \rangle$ (This is actually 5 \times $| \cdot \rangle$ 00.) Write a 5.

Subtract 5 from 7. (This is actually 700 – 500.) Write a 2.

Bring down the 3 from the tens place.

Divide 23 by 5. **Write** the quotient, 4, in the tens place. **Multiply** 5 by 4. (This is actually 5×40 .) Write a 20.

Subtract 20 from 23.

Bring down the 4 from the ones place.



Write

Multiply | Subtract

Divide 34 by 5.

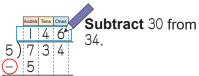
Write the quotient,
6, in the ones place.

Multiply 5 by 6. Write a 30.

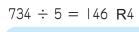
Write

Multiply

Subtract



The remainder is 4.



This "—" is not necessarily written in the algorithm. From this section, the "-" is omitted.

Check the answer:

$$5 \times 146 + 4 = 734$$

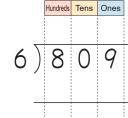
Calculate the following division problems by using the algorithm.

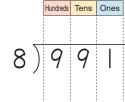
Bring down

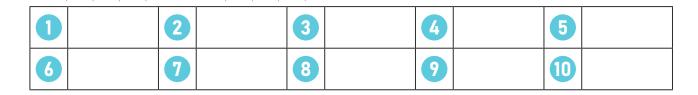


Calculation of the tens place





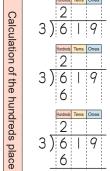




Division Algorithm (7)



Calculate $619 \div 3$.



3)619

0 1

Hundreds Ten

3)619

0 1

0

1 9

6

Divide 6 by 3. Write the quotient, 2, in the hundreds place.

Multiply 3 by 2. (This is actually 3×200 .) Write a 6.

Subtract 6 from 6. (This is actually 600 - 600.) It is a 0.

Bring down the | from the tens place.

Divide | by 3. $(1 \div 3 = 0 \text{ R3})$ Write the quotient, 0, in the tens place. Multiply 0 by 3. Write a 0.

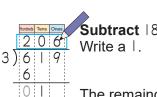
Subtract 0 from 1. Write a 1. Bring down the 9 from the ones place.

2 0 6 Write 3)619 Multiply 6 0 | 0 Subtract Bring down Calculation of the ones place 19 1 8 Divide 19 by 3. Write the quotient, 6, in the ones place.

Multiply

Subtract

Multiply 3 by 6. Write an 18.



Subtract | 8 from | 9.

The remainder is 1. 0

 $619 \div 3 = 206 \text{ R}$

Check the answer:

1 9

$$3 \times 206 + 1 = 619$$

Calculate the following division problems by using the algorithm.

Bring down

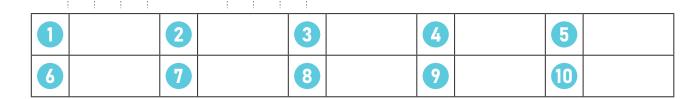
Write

Multiply

Subtract



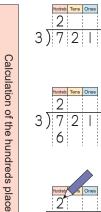
Calculation of the tens place



Division Algorithm (8)

Example

Calculate 721 ÷ 3.



Divide 7 by 3.

Write the quotient, 2, in the hundreds place.



Multiply 3 by 2. (This is actually 3×200 .) Write a 6.



Subtract 6 from 7. (This is actually 700-600.) Write a ∣.

Bring down the 2 from the tens place.

Write Calculation of the tens place Multiply Subtract | Bring down

Calculation of the ones place

> 6 2

2

0 |

0

Bring down the | from the ones place. 0 1

Write a 0.

Divide |2 by 3.

in the tens place.

Multiply 3 by 4.

Write a 12.

Write the quotient, 4,

(This is actually 3×40 .)

Subtract |2 from |2.

(This is actually |20 - |20.)

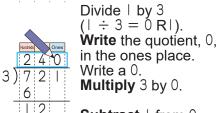
Write

Bring down

⊢ Write

⊢ Multiply

Subtract



Subtract | from 0. Write a 1. The remainder is 1.

$$721 \div 3 = 240 \text{ R}$$

Check the answer:

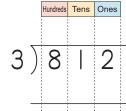
$$3 \times 240 + 1 = 721$$

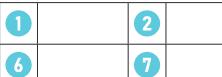
Calculate the following division problems by using the algorithm.

 $812 \div 3$

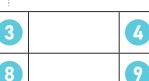


Hundreds Tens Ones





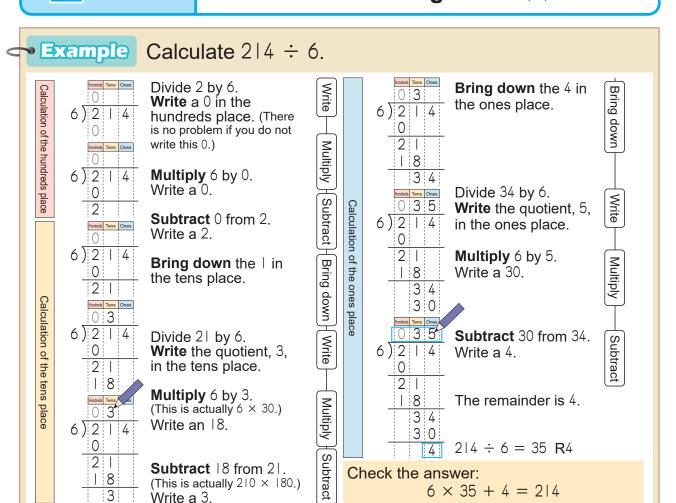






Division Algorithm-1

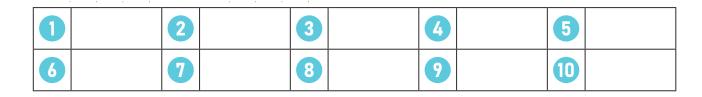
Division Algorithm (9)



Calculate the following division problems by using the algorithm.

- 1 169 ÷ 6
- 2 367 ÷ 7
- 3 269 ÷ 3
- 4 235 ÷ 6

- Hundreds Tens Ones
 6) 1 6 9
- 7)367
- 5 263 ÷ 4
- 6 198 ÷ 5
- 7739 ÷ 8
- 8 598 ÷ 9
- 9 626 ÷ 7
- 10 493 ÷ 6

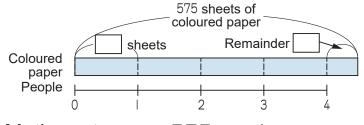


Division Algorithm-1

Division Problems (2)

Example

575 sheets of coloured paper are divided equally among 4 people. How many sheets of paper will each person get? How many sheets of paper are left over?



1 4 3 4) 5 7 5 4

6

5

3

Math sentence 575 ÷ 4

Answer | 43 R 3.

are left.

Each person will get | 43 sheets and 3 are left.

Check

$$4 \times 143 + 3 = 575$$

323 sheets of coulored paper will be divided equally among 3 classes. How many sheets of paper will each class get, and how many will be left over?

Math sentence

Answer

Check

There are 286 pencils divided into packages of 5 pencils each. How many packages we can make? How many pencils will be Left over?

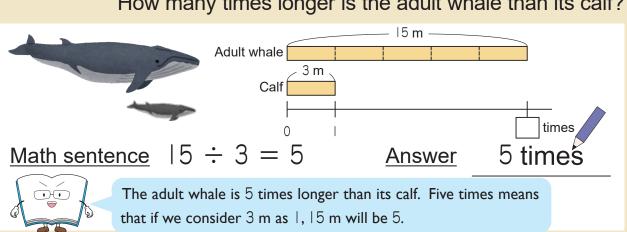
Math sentence

Answer

Division Algorithm-1

Calculations with Times as Much (1)

Example An adult whale is 15 m long, and its calf is 3 m long. How many times longer is the adult whale than its calf?



Answer the following questions.

My current weight is 36 kg. When I was a baby, my weight was only 4 kg. How many times heavier am I currently than when I was a baby?

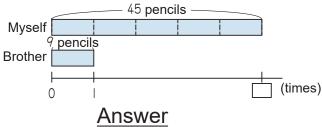
Math sentence

Current weight							
enl was a baby	4 kg <						
		<u> </u>				\dashv	5
()	ı				L	(ti

<u>Answer</u>

I have 45 pencils. My younger brother has 9 pencils. How many times more pencils do I have than my brother?

Math sentence



3 There are 90 pieces of white paper and 9 pieces of coloured paper. How many times more pieces of white paper are there than pieces of coloured paper?

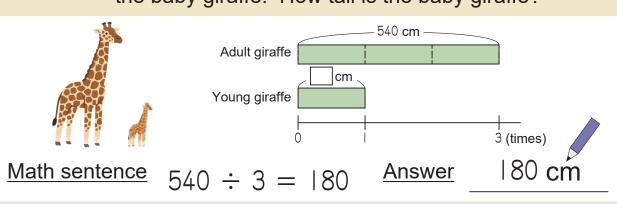
Math sentence

Answer

Division Algorithm-1

Calculations with Times as Much (2)

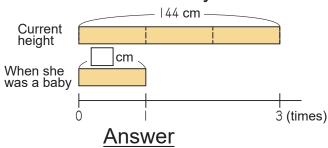
Example A adult giraffe is 540 cm tall. It is 3 times taller than the baby giraffe. How tall is the baby giraffe?



Answer the following questions.

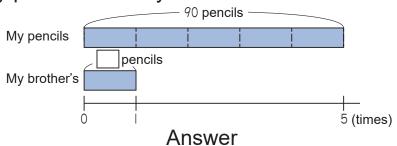
1 My sister is 144 cm tall. She is 3 times taller than when she was a baby. How tall was she when she was a baby?

Math sentence



I have 90 pencils. It is 5 times more pencils than what my brother has. How many pencils does my brother have?

Math sentence



My school library has 416 books. My school library has 8 times more books than my class library. How many books does my class library have?

Math sentence

<u>Answer</u>		

Division Algorithm-1

Calculations with Times as Much (3)

Example A young lion weighs 22 kg. An adult lion is 6 times heavier. How heavy is the adult lion?

Adult lion

Young lion

Adult lion

Young lion

Wath sentence 22 × 6 = |32

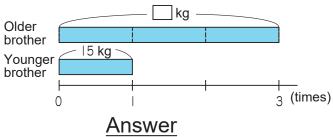
Use |32 ÷ 6 to check your answer.

Answer | |32 kg|

Answer the following questions.

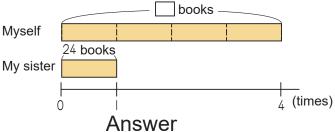
1 My younger brother weighs 15 kg, and my older brother is 3 times times heavier. How much does my older brother weigh?

Math sentence



2 My sister read 24 books last month. I read 4 times as many books as she did. How many books did I read in total last month?

Math sentence



I cut a 35 cm long piece of ribbon. The ribbon was originally 8 times as long as the ribbon I have. How long was the original ribbon?

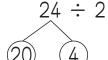
Math sentence

Answer

Division Algorithm-1

Mental Calculation (1)

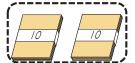
Example 1 Calculate 24 ÷ 2



$$20 \div 2 = 10$$

 $4 \div 2 = 2$

Altogether |2



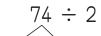


Calculate the following division problems in your head.

Example 2 Calculate 74 ÷ 2



You can't divide 7 by 2 without a remainder. Instead, divide 74 into 60 and 14 and divide both numbers by 2. Then add the answers together.

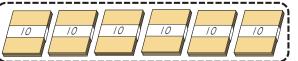


$$60 \div 2 = 30$$
 $14 \div 2 = 7$

Altogether

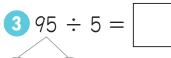
37

$$74 \div 2 = 37$$





Calculate the following division problems in your head.





Division Algorithm-1

Mental Calculation (2)

Example 1 Calculate 240 ÷ 2



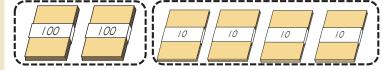
There is a 2 in the hundreds place and a 4 in the tens place. Calculate $24 \div 2$.

After you get |2 as the answer, put a 0 to the right of the number, which means |0 times.

$$24 \div 2 = 12$$

$$\downarrow 10 \text{ times}$$

$$240 \div 2 = 120$$



$$240 \div 2 = 120$$

Calculate the following division problems in your head.

Example 2 Calculate 740 ÷ 2



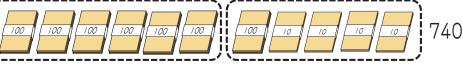
There is a 7 in the hundreds place and a 4 in the tens place. Calculate $74 \div 2$.

After you get 37 as the answer, put a 0 to the right of the number, which means 10 times.

$$74 \div 2 = 37$$

$$\downarrow 10 \text{ times}$$

$$740 \div 2 = 370$$



$$740 \div 2 = 370$$

Calculate the following division problems in your head.

Division Algorithm-1

Review

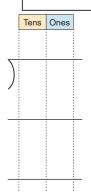
- 1 Calculate the following division problems in your head.
- 1 90 ÷ 3 =
- 2 360 ÷ 4 =
- 3 250 ÷ 5 =

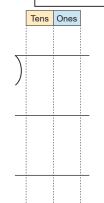
- 4 1600 ÷ 4 =
- 5 1000 ÷ 2 =
- **6** 2800 ÷ 7 =

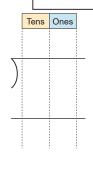
- 7 24 ÷ 2 =
- 8 69 ÷ 3 =
- 9 88 ÷ 4 =

- 10 78 ÷ 6 =
- 84 ÷ 3 =
- 12 75 ÷ 5 =

- 13 840 ÷ 3 =
- 14 960 ÷ 8 =
- 15 960 ÷ 6 =
- Calculate the following division problems by using the algorithm. Then check your answer.
- 1 70 ÷ 3 =
- 2 66 ÷ 4 =
- **3** 97 ÷ 9 =





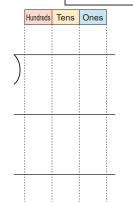


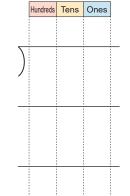
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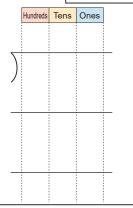
Check

Check

- **4** 8 | 4 ÷ 4 =
- **5** 925 ÷ 3 =
- 6 603 ÷ 5 =







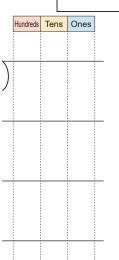
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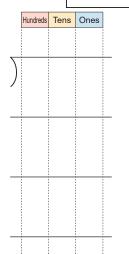
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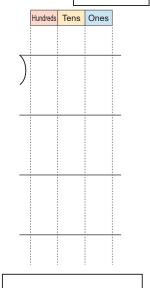
7733 ÷ 6 =

8 987 ÷ 4 =

9716 ÷ 3 =







Check

Check

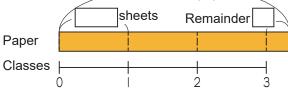
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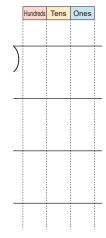
___Check ______

500 sheets of paper are divided equally among 3 classes. How many sheets of paper will each class get? How many sheets of paper will be left over?

500 sheets of paper

Math sentence





<u>Answer</u>

Check

I have 40 biscuits and my younger brother has 8 biscuits. How many times more biscuits do I have?

Math sentence

<u>Answer</u>

I have 72 pencils. I have 6 times more pencils than my brother has. How many pencils does my brother have?

Math sentence

Answer