

GRADE 4

Division

WORKSHEETS

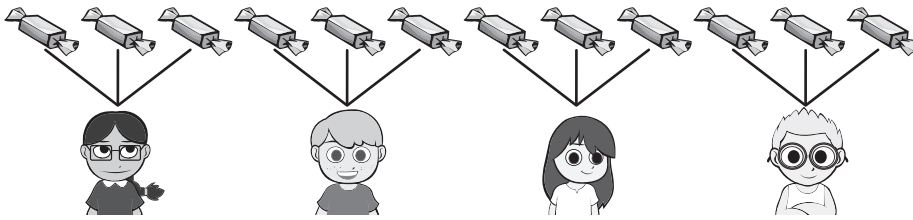
Mathletics

love learning.

Division – division is sharing and grouping

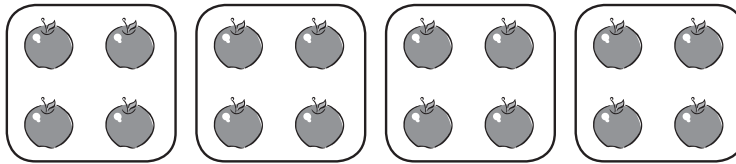
Division can mean sharing *or* grouping.

There are 12 candies shared among 4 kids. How many are in each share?



$$12 \div 4 = 3$$

There are 16 apples and 4 go into each basket. How many baskets do I need?



$$16 \div 4 = 4$$

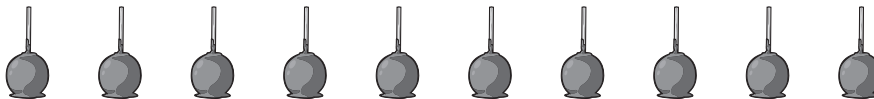
1 Solve these sharing and grouping questions:

a There are 9 cupcakes and 3 kids are sharing. How many are in each share?



$$\square \div \square = \square$$

b A group of kids share 12 candies so they each get 2. How many kids are sharing?



$$\square \div \square = \square$$

c There are 24 pencils and 6 pencil cups. How many pencils go into each pencil cup?



$$\square \div \square = \square$$

Division – division is sharing and grouping

- 2** Draw pictures to show these division questions. Then write the division fact and decide whether it is a sharing or a grouping question.

If you need to find out how many items there are in each share, it's a sharing question. If you need to find out the number of equal shares, it's a grouping question.



CHECK

- a** Divide 16 candies among 4 girls. How many does each girl get?

$$\square \div \square = \square$$

sharing / grouping

- b** From a packet of 24 pencils, each person will get 6. How many people are sharing the pencils?

$$\square \div \square = \square$$

sharing / grouping

- c** 48 eggs are laid by 6 hens. If they all laid the same amount, how many did each hen lay?

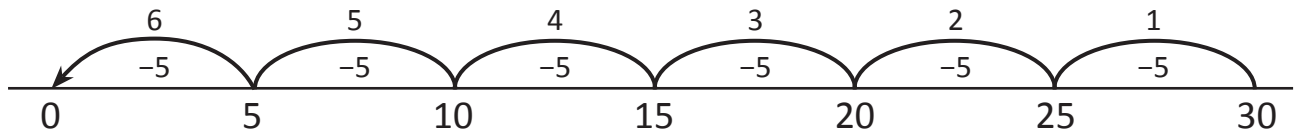
$$\square \div \square = \square$$

sharing / grouping

Division – division is repeated subtraction

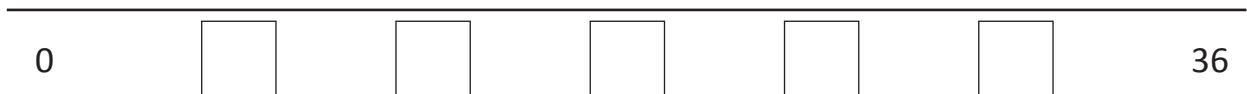
Division can also be thought of as repeated subtraction.

Look at $30 \div 5 = \boxed{?}$ This question is asking how many groups of 5 there are in 30. Jump in 5s along the number line and then count the jumps.



- 1** Show these division facts as repeated subtraction. First label the number lines and then show the jumps.

a $36 \div 6 = \boxed{}$

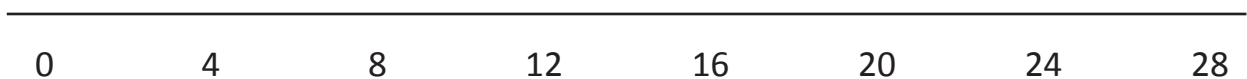


b $21 \div 3 = \boxed{}$

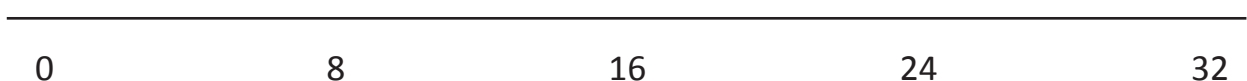


- 2** Write a division fact to match these number lines. Show the jumps.

a $\boxed{} \div \boxed{} = \boxed{}$

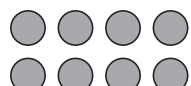


b $\boxed{} \div \boxed{} = \boxed{}$



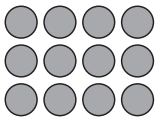
Division – linking multiplication and division facts

Knowing multiplication facts will help with division facts. This is because they are opposites. Look at how we can describe this array:

	$6 \times 4 = 24$	6 groups of 4 is 24.
	$4 \times 6 = 24$	4 groups of 6 is 24.
	$24 \div 4 = 6$	24 divided into 4 shares is 6.
	$24 \div 6 = 4$	24 divided into 6 shares is 4.

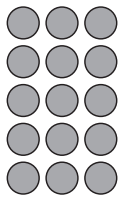
1 Describe each of these arrays using two multiplication and two division facts:

a



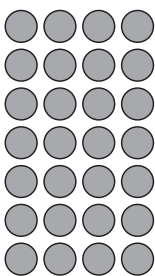
	$\times$		$=$	
	$\times$		$=$	
	$\div$		$=$	
	$\div$		$=$	

b



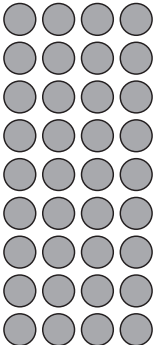
	$\times$		$=$	
	$\times$		$=$	
	$\div$		$=$	
	$\div$		$=$	

c



	$\times$		$=$	
	$\times$		$=$	
	$\div$		$=$	
	$\div$		$=$	

d



	$\times$		$=$	
	$\times$		$=$	
	$\div$		$=$	
	$\div$		$=$	

2 Draw an array of 6 rows of 3, then describe it with multiplication and division facts.

	$\times$		$=$	
	$\times$		$=$	
	$\div$		$=$	
	$\div$		$=$	

This is also called a fact family.

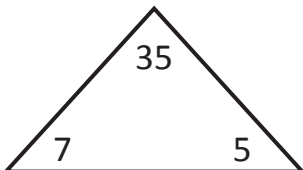


REMEMBER

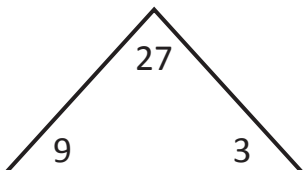
Division – linking multiplication and division facts

- 3** Write a fact family for each set of numbers in the triangle. The first one has been done for you.

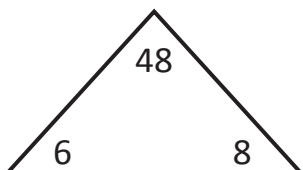
a

$\boxed{5} \times \boxed{7} = \boxed{35}$		$\boxed{35} \div \boxed{5} = \boxed{7}$
$\boxed{7} \times \boxed{5} = \boxed{35}$		$\boxed{35} \div \boxed{7} = \boxed{5}$

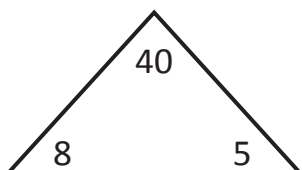
b

$\boxed{} \times \boxed{} = \boxed{}$		$\boxed{} \div \boxed{} = \boxed{}$
$\boxed{} \times \boxed{} = \boxed{}$		$\boxed{} \div \boxed{} = \boxed{}$

c

$\boxed{} \times \boxed{} = \boxed{}$		$\boxed{} \div \boxed{} = \boxed{}$
$\boxed{} \times \boxed{} = \boxed{}$		$\boxed{} \div \boxed{} = \boxed{}$

d

$\boxed{} \times \boxed{} = \boxed{}$		$\boxed{} \div \boxed{} = \boxed{}$
$\boxed{} \times \boxed{} = \boxed{}$		$\boxed{} \div \boxed{} = \boxed{}$

- 4** For these problems, think of a multiplication fact to help write the division fact:

- a** \$25 is shared among 5 people. How much does each person get?

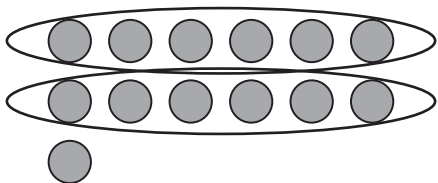
$\boxed{} \times \boxed{} = \boxed{}$	$\boxed{} \div \boxed{} = \boxed{}$
---	---

- b** 45 people get into 9 cars. How many people are in each car?

$\boxed{} \times \boxed{} = \boxed{}$	$\boxed{} \div \boxed{} = \boxed{}$
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Division – remainders

Sometimes division is not exact.

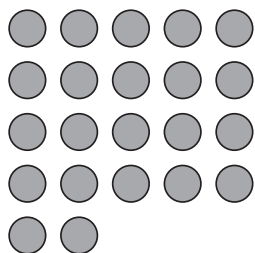


From 13, we can make 2 equal shares of 6 with 1 left over. We call the left over the remainder.

$$13 \div 6 = 2 \text{ remainder } 1$$

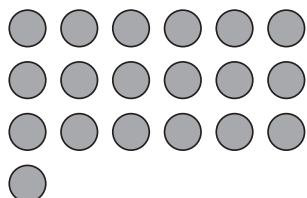
1 In each array, ring the equal shares to see the remainder:

a



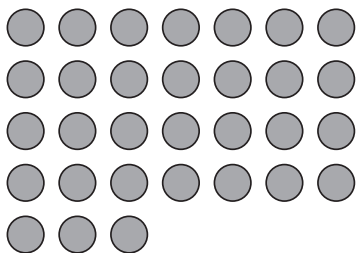
$$22 \div 5 = \square \text{ remainder } \square$$

b



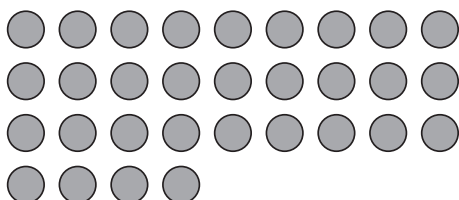
$$19 \div 6 = \square \text{ remainder } \square$$

c



$$31 \div 7 = \square \text{ remainder } \square$$

d



$$31 \div 9 = \square \text{ remainder } \square$$

Division – remainders

Now use your multiplication facts.

$$25 \div 6 = \boxed{?} \quad \text{Think} \quad 4 \times 6 = 24 + 1 \text{ is } 25$$

$$\text{So, } 25 \div 6 = 4 \text{ remainder } 1$$

2 Use your multiplication facts to write the division facts and the remainder:

a $32 \div 10 = \boxed{?}$ Think $\boxed{} \times \boxed{} = \boxed{} + \boxed{}$ is $\boxed{}$

So, $\boxed{} \div \boxed{} = \boxed{}$ remainder $\boxed{}$

b $30 \div 4 = \boxed{?}$ Think $\boxed{} \times \boxed{} = \boxed{} + \boxed{}$ is $\boxed{}$

So, $\boxed{} \div \boxed{} = \boxed{}$ remainder $\boxed{}$

c $37 \div 9 = \boxed{?}$ Think $\boxed{} \times \boxed{} = \boxed{} + \boxed{}$ is $\boxed{}$

So, $\boxed{} \div \boxed{} = \boxed{}$ remainder $\boxed{}$

3 Complete each word problem:

a 39 pencils were shared among 6 kids. How many did each kid get?

$$\boxed{} \div \boxed{} = \boxed{} \text{ remainder } \boxed{}$$

b 43 fish were divided among 6 tanks. How many fish are in each tank?

$$\boxed{} \div \boxed{} = \boxed{} \text{ remainder } \boxed{}$$

c From 17 flowers, 5 flowers were arranged in each vase. How many vases were used?

$$\boxed{} \div \boxed{} = \boxed{} \text{ remainder } \boxed{}$$

4 Write in the missing number to make this statement true:

$$\boxed{} \div 6 = 8 \text{ remainder } 2$$

Mental division strategies – dividing by 10 and 100

When we divide any number by 10, we move the number one place value space to the right.

When we divide any number by 100, we move the number two place value spaces to the right.

Thousands	Hundreds	Tens	Ones
6	7	0	0
	6	7	0
		6	7

÷ 10

÷ 100

1 Use the place value tables to divide these numbers by 10 and 100.

a

Th	H	T	O
5	3	0	0

÷ 10

÷ 100

b

Th	H	T	O
4	1	0	0

÷ 10

÷ 100

c

Th	H	T	O
8	4	0	0

÷ 10

÷ 100

d

Th	H	T	O
2	4	0	0

÷ 10

÷ 100

2 Use patterns to solve these:

a $1,400 \div 1 =$ $1,400 \div 10 =$ $1,400 \div 100 =$

b $5,600 \div 1 =$ $5,600 \div 10 =$ $5,600 \div 100 =$

c $3,500 \div 1 =$ $3,500 \div 10 =$ $3,500 \div 100 =$

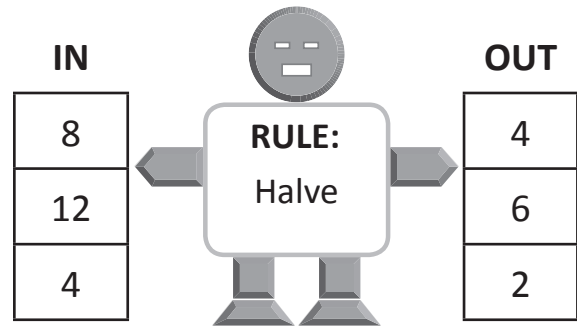
3 Use a calculator to solve these:

a $270 \div 100 =$

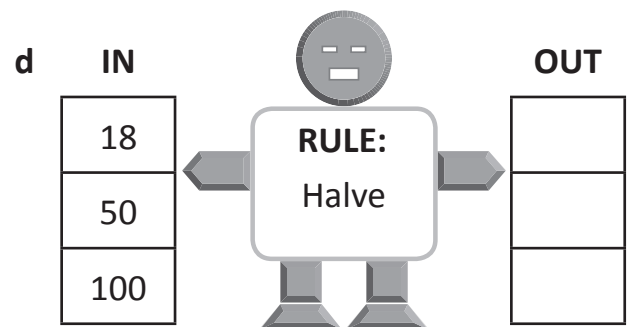
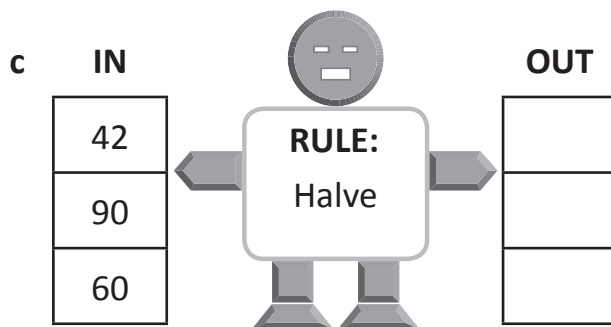
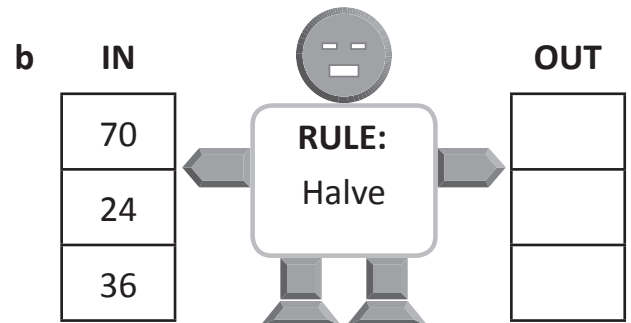
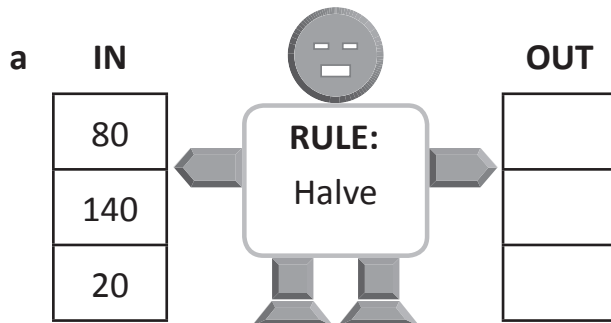
b $49 \div 10 =$

Mental division strategies – halving strategy

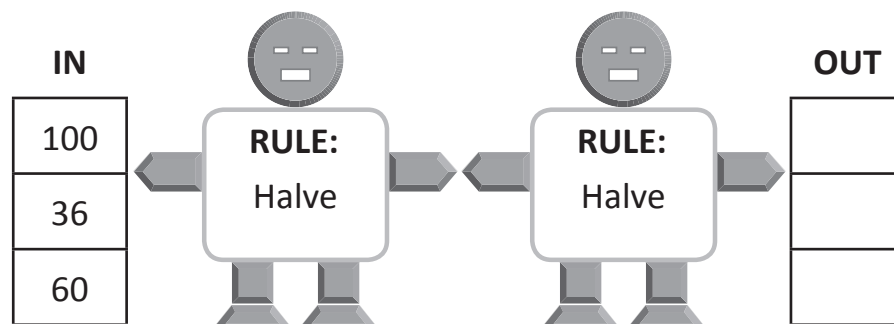
When you halve numbers you are dividing them by 2. In this function machine, numbers go IN, have the rule applied, and come OUT again.



- 1 Complete the halving function machines. Halve the number going IN the machine and write the answer in the OUT column:

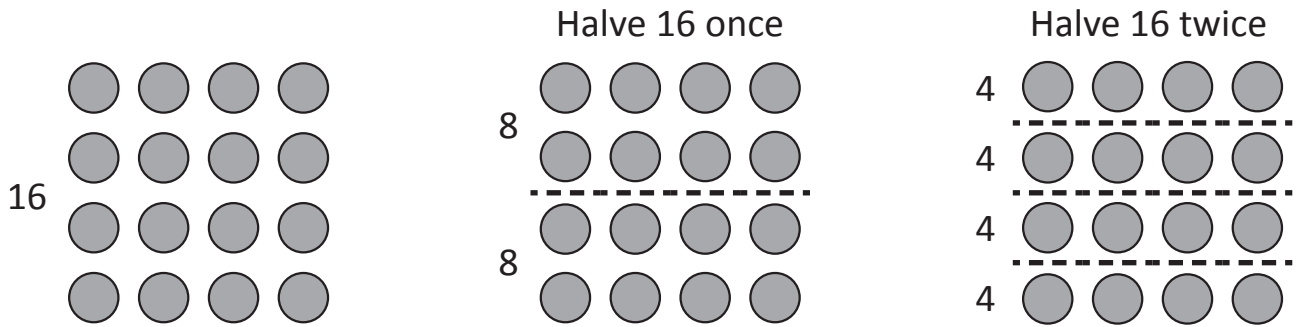


- 2 Below is a halving-halving function machine. The number goes IN and is halved and then halved again and comes OUT.



Mental division strategies – halving strategy

We also use halving-halving to divide by 4. Look at these diagrams:



3 Use the tables for halving-halving to divide by 4:

a

$80 \div 4 =$
Halve 80 once
Halve 80 twice

b

$48 \div 4 =$
Halve 48 once
Halve 48 twice

c

$64 \div 4 =$
Halve 64 once
Halve 64 twice

d

$120 \div 4 =$
Halve 120 once
Halve 120 twice

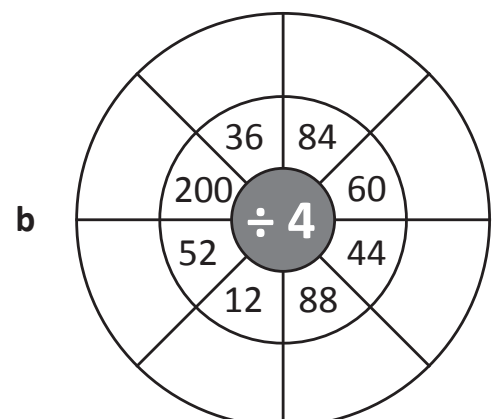
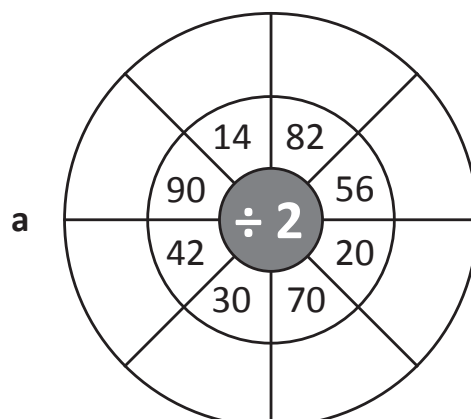
e

$244 \div 4 =$
Halve 244 once
Halve 244 twice

f

$88 \div 4 =$
Halve 88 once
Halve 88 twice

4 Complete the division wheels:



Mental division strategies – split strategy

Division problems can be much easier to solve if you split the number.

Look at $125 \div 5$.

Can we split the number into two multiples of 5?

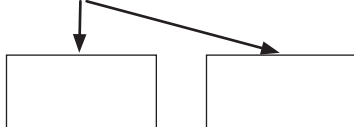
Yes, we can split 125 into 100 and 25.

We divide each part by 5 and then add the two answers together.

$$\begin{array}{r} 125 \div 5 \\ \swarrow \downarrow \searrow \\ 100 \quad 25 \\ \div 5 \quad \div 5 \\ 20 + 5 = 25 \end{array}$$

1 Use the split strategy to divide these by 5:

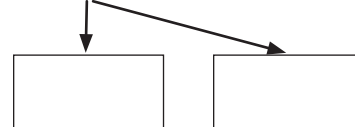
a $115 \div 5$



$$\div 5 \quad \div 5$$

$$\boxed{} + \boxed{} = \boxed{}$$

b $135 \div 5$

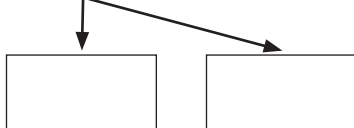


$$\div 5 \quad \div 5$$

$$\boxed{} + \boxed{} = \boxed{}$$

2 Use the split strategy to divide these by 4:

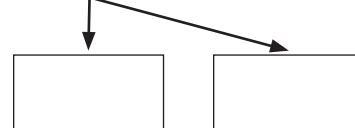
a $64 \div 4$



$$\div 4 \quad \div 4$$

$$\boxed{} + \boxed{} = \boxed{}$$

b $116 \div 4$

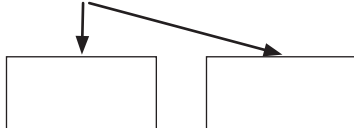


$$\div 4 \quad \div 4$$

$$\boxed{} + \boxed{} = \boxed{}$$

3 Use the split strategy to divide these by 3:

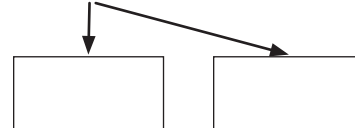
a $330 \div 3$



$$\div 3 \quad \div 3$$

$$\boxed{} + \boxed{} = \boxed{}$$

b $612 \div 3$



$$\div 3 \quad \div 3$$

$$\boxed{} + \boxed{} = \boxed{}$$

Mental division strategies – strategy review

Review your division strategies.

- 1 Use either the halving strategy or the split strategy to complete the tables. The first one has been done for you.

a Use the split strategy:

$$48 \div 3 = \boxed{16}$$

$$48 \text{ is } 30 + 18$$

$$30 \div 3 = 10 \text{ and } 18 \div 3 = 6$$

$$10 + 6 = 16$$

b Use the halving strategy:

$$64 \div 4 = \boxed{}$$

c Use the split strategy:

$$312 \div 3 = \boxed{}$$

d Use the halving strategy:

$$140 \div 4 = \boxed{}$$

- 2 Solve this riddle by matching the letter to the answer. Use a mental division strategy for each problem.

What is it that the more you take, the more you leave behind?

$$68 \div 4 = \boxed{} \text{ s}$$

$$90 \div 6 = \boxed{} \text{ p}$$

$$135 \div 5 = \boxed{} \text{ e}$$

$$1,200 \div 10 = \boxed{} \text{ f}$$

$$240 \div 4 = \boxed{} \text{ o}$$

$$128 \div 4 = \boxed{} \text{ t}$$

120	60	60	32	17	32	27	15	17

Division – written methods

Another way to represent division is with the division symbol.

$$\begin{array}{r} \text{T} \quad \text{O} \\ 6 \overline{) 36} \\ \underline{6} \\ 0 \end{array}$$

This is the same as $36 \div 6 = 6$

If the answer is a single digit, it should go in the ones column.

1 Solve these division problems using the division symbol:

a $\begin{array}{r} \\ 5 \overline{) 35} \end{array}$

b $\begin{array}{r} \\ 4 \overline{) 28} \end{array}$

c $\begin{array}{r} \\ 9 \overline{) 18} \end{array}$

d $\begin{array}{r} \\ 6 \overline{) 54} \end{array}$

e $\begin{array}{r} \\ 2 \overline{) 14} \end{array}$

f $\begin{array}{r} \\ 4 \overline{) 16} \end{array}$

g $\begin{array}{r} \\ 5 \overline{) 25} \end{array}$

h $\begin{array}{r} \\ 7 \overline{) 49} \end{array}$

i $\begin{array}{r} \\ 8 \overline{) 48} \end{array}$

2 Use the division symbol to solve each problem:

- a 42 cupcakes were iced by 7 kids. If they each iced the same amount, how many did each one ice?

$$\begin{array}{r} \\ \overline{) 42} \end{array}$$

- b How many pots were used if 6 seeds were planted in each pot from a packet of 54?

$$\begin{array}{r} \\ \overline{) 54} \end{array}$$

- c I run the same distance each day. Over 9 days the total distance is 72 km. How far did I run each day?

$$\begin{array}{r} \\ \overline{) 72} \end{array}$$

Division – written methods

This is the way we write remainders when using the division symbol.

$$\begin{array}{r} 2 \text{ r } 3 \\ 6 \overline{) 15} \end{array}$$

This is the same as $15 \div 6 = 2$ remainder 3.

Check your work with the closest multiplication fact:

$$6 \times 2 = 12$$

$$\text{Then add on the remainder: } 12 + 3 = 15$$

1 Solve these division problems and then check them.

a

$$\begin{array}{r} \square \text{ r } \square \\ 8 \overline{) 27} \end{array}$$

Check with the multiplication fact and add the remainder:

$$\square \times \square = \square + \square$$

b

$$\begin{array}{r} \square \text{ r } \square \\ 9 \overline{) 38} \end{array}$$

Check with the multiplication fact and add the remainder:

$$\square \times \square = \square + \square$$

c

$$\begin{array}{r} \square \text{ r } \square \\ 6 \overline{) 45} \end{array}$$

Check with the multiplication fact and add the remainder:

$$\square \times \square = \square + \square$$

d

$$\begin{array}{r} \square \text{ r } \square \\ 5 \overline{) 48} \end{array}$$

Check with the multiplication fact and add the remainder:

$$\square \times \square = \square + \square$$

2 What is the question if I am checking with this multiplication fact?

$$\begin{array}{r} \square \text{ r } \square \\ \overline{) } \end{array}$$

$$5 \times 6 = 30 + 3$$

Division – written methods

In division with 3-digit numbers we split the number:

468 is $400 + 60 + 8$

400 divided by 2 is 200, so we put a 2 in the hundreds place.

60 divided by 2 is 30, so we put a 3 in the tens place.

8 divided by 2 is 4, so we put a 4 in the ones place.

	H	T	O
	2	3	4
2	4	6	8

1 Practice splitting these:

a 368 is _____ + _____ + _____

b 445 is _____ + _____ + _____

c 567 is _____ + _____ + _____

d 235 is _____ + _____ + _____

2 Now put these split numbers back together:

a $500 + 70 + 8$ is _____

b $700 + 90 + 4$ is _____

c $200 + 40 + 6$ is _____

d $800 + 50 + 5$ is _____

3 Solve these division problems with 3-digit numbers:

a

4	8	4	4

b

3	6	9	3

c

2	8	4	2

d

2	4	8	8

4 Here are two division problems with missing numbers in the questions. Find out the missing numbers by using the numbers that are part of the answer as clues.

a

	1	2	
	4		4

b

	3		
3		3	6

Division – written methods

Sometimes we need to split the number a different way.

For example: $515 = 500 + 15$

500 divided by 5 is 100, so we put a 1 in the hundreds place.

15 divided by 5 is 3, so we put a 3 in the ones place.

What goes in the tens place?

A zero does. The zero has the very important job of keeping the other numbers in their place!

	H	T	O
	1	0	3
5	5	1	5

5 Practice these problems. We have put the zero in to remind you:

a

		0	
4	8	1	2

b

		0	
3	9	2	4

c

		0	
3	9	1	2

d

		0	
4	8	2	4

6 Practice these problems. This time, you need to remember the zero!

a

3	9	1 8

b

6	6	1 2

c

4	8	3 2

d

4	8	1 6



What to do

Can you work out the value of each symbol?

The values are 2, 3, 4, 6, 8, 9, and 12. Remember, the same symbol means that it's the same number.

$$\diamond \times \diamond = \star \quad \square \times \square = \square$$

$$\diamond \times \diamond \times \diamond = \star \quad \square \times \square \times \square = \square$$

$$\diamond \times \star = \star \quad \square \times \square = \square$$

$$\nabla \times \star = \bigcirc \quad \square \times \square = \square$$

$$\nabla \times \nabla = \bigcirc \star \quad \square \times \square = \square$$

$$\nabla \times \diamond = \blacksquare \quad \square \times \square = \square$$

$$\blacksquare \times \diamond = \bigcirc \quad \square \times \square = \square$$

$$\diamond = \square$$

$$\star = \square$$

$$\star = \square$$

$$\nabla = \square$$

$$\bigcirc \star = \square$$

$$\blacksquare = \square$$

$$\bigcirc = \square$$