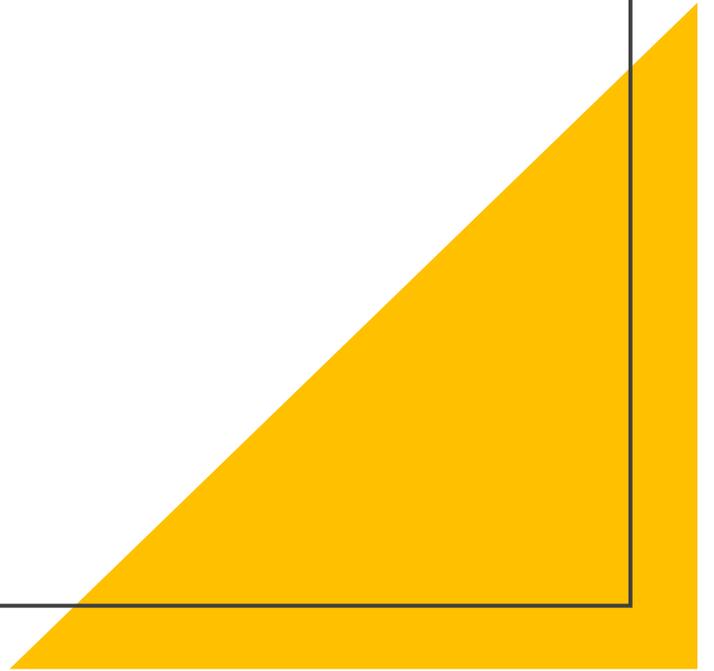


Maths  
homelearning  
w/c 01.11.2021



Lesson 1:

Multiplying whole numbers by 10, 100 & 1000

Lesson 2:

Dividing whole numbers by 10, 100 & 1000

Lesson 3:

Multiplying decimals by 10, 100 & 1000

Lesson 4:

Dividing decimals by 10, 100 & 1000

Lesson 5:

Reasoning based on Multiplying and dividing numbers including decimals

# Lesson 1

Multiplying whole numbers by 10, 100 & 1000

## Multiplying whole numbers by 10, 100 & 1000

### Times tables

$$? \times 7 = 49$$

Rehearse X7

$$? \times ? = 70$$

$$77 = 11 \times ?$$

At a cake sale there are chocolate cakes and fairy cakes.  
Chocolate cakes are decorated with 7 chocolate stars.  
Fairy cakes are decorated with 7 sugar stars.  
I can count 63 stars altogether.  
How many of each cake are there?  
You must have at least one of each kind of cake.  
There are a few possible combinations.  
**How many can you find?**



Check your answers for the cake question:

At a cake sale there are chocolate cakes and fairy cakes.  
Chocolate cakes are decorated with 7 chocolate stars.  
Fairy cakes are decorated with 7 sugar stars.  
I can count 63 stars altogether.  
How many of each cake are there?  
You must have at least one of each kind of cake.  
There are a few possible combinations.  
**How many can you find?**



Chocolate	Fairy
8	1
7	2
6	3
5	4
4	5
3	6
2	7
1	8

## OMS Reading and writing whole numbers.

Recap: let us read the numbers below:

45,678

9,567,001

10,145,523

Now write them in words.

Write the follow numbers using numerals:

1. Three million, nine thousand, two hundred and seventy-five.

2. Nine million and one.

3. Two hundred thousand, three hundred and four.

## Learning Intention

To multiply and divide

## Success Criteria

On Fire: I can apply my knowledge to solving problems and SATs style questions.

Hotter: I can accurately multiply by 10, 100 & 1000 using knowledge of place value.

Hot: I can multiply by 10, 100 & 1000 using practical apparatus.

### Multiplying by 10

10	10	10
----	----	----

 $3 \times 10 = 30$

10	10	10	10	10	10	10	10	10	10	10	10
----	----	----	----	----	----	----	----	----	----	----	----

  
 $12 \times 10 = 120$

Th	H	T	O
		7	8
Th	H	T	O
	7	8	0

$78 \times 10 = 780$

When you multiply a number by 10, each digit moves one place to the left.

Why is there a 0 in the ones column?

Have a go with the following numbers using your pv chart and counters.

3	4
---	---

1	5	2
---	---	---

9	0	2	0
---	---	---	---

### Multiplying by 100

Th	H	T	O
		7	8
Th	H	T	O
7	8	0	0

$78 \times 100 = 7800$

When you multiply by 100, each digit moves 2 places to the left.

You must insert 0 as a place holder!

Use your pv chart and counters to have a go.

3	4
---	---

4	5	0
---	---	---

5	0	0	1
---	---	---	---

9	0	0	0	0
---	---	---	---	---

What do you notice about the numbers of 0s when multiplying by 10 or 100?

## Multiplying by 1000

When you multiply by 1000, each digit moves 3 places to the left.

	Th	H	T	O
			7	8
TTh	Th	H	T	O
7	8	0	0	0

Now you have a go!

40 100 9569

Let's bring it all together!

Have a think



$$78 \times \underline{10} = 780$$

$$78 \times \underline{100} = 7,800$$

$$78 \times \underline{1,000} = 78,000$$

Th	H	T	O
		7	8

Th	H	T	O
	7	8	0

Th	H	T	O
7	8	0	0

TTh	Th	H	T	O
7	8	0	0	0

What stays the same? What changes?

So what is a quick way of multiplying a whole number by 10, 100 or 1000?

When multiplying a whole number by 10, You write one zero after the number.

Eg 20 become 200

When multiplying a whole number by 100, you write two zeros after the number.

Eg 245 becomes 24 500

When multiplying a whole number by a 1000, you write three zeros after the number.

Eg 1 351 becomes 1 351 000

Remember that the multiplied number is 10, 100 or thousand times larger than the original number.

### Independent tasks

Copy and complete in your book. The first one has been done for you.  $67 \times 10 = 670$

Th H T O

$320 \times 10 =$

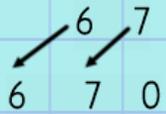
$9 \times 1000 =$

$13 \times 100 =$

$13 \times 1000 =$

$403 \times 1000 =$

$5090 \times 1000 =$



$10 \times 952 =$

$100 \times 952 =$

$1,000 \times 952 =$

### Reasoning and problem solving

Copy and complete in your book

1. Write  $>$ ,  $<$  or  $=$  to make the statements true.

a)  $78 \times 10$    $78 \times 100$

b)  $100 \times 56$    $65 \times 100$

c)  $930 \times 10$    $100 \times 93$

d)  $1,000 \times 482$    $482 \times 100$

1. Complete the multiplication sentences.  
2.

a)  $52 \times$    $= 5,200$

f)   $\times 370 = 3,700$

b)  $95 \times$    $= 950$

g)   $\times 100 = 8,200$

c)  $136 \times$    $= 1,360$

h)   $\times 100 = 82,000$

d)  $272 \times$    $= 272,000$

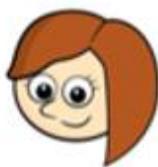
i)   $\times 10 = 39,000$

e)  $6,200 =$    $\times 62$

j)  $1,000 \times$    $= 80,000$

3.

$54 \times 1,000$   
is the same as  
 $54 \times 10 \times 10 \times 10$



Is Rosie correct? \_\_\_\_\_

Explain how you know.

---

---

4.

Amir thinks of a number.

He multiplies it by 100

The answer has the same digit in the thousands and hundreds columns.

The total of all the digits is 8

What could the number be?

5.

Mrs Hall owns a bookshop.

- In January, she sold 145 books.
- In February she sold 10 times as many books.
- In March she sold 10 times as many books as in February.

How many books did Mrs Hall sell in March?

Show your workings.

## Lesson 2

Dividing whole numbers by 10, 100 & 1000

## Dividing by 10, 100 and 1000

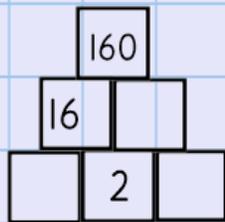
### Timestables

$$? \times 8 = 96$$

$$? \times 8 = 960$$

$$? \times 8 = 0.96$$

$$? \times 8 = 7.2$$



The product of each brick is found by multiplying the two bricks below it. Solve the problem.

*Now make one up for your teacher to solve!*

Rehearse X8

## OMS- Value of the underlined digit.

1,345,91

4,056,783

6,702.342

0.148

Now write your own 6 digit numbers.

1. The number has 6 digits. It has eight tenths.

2. The hundredths digit is less than the ones digit.

3. The hundreds digit is one more than the tens digit and then ones digit is less than the hundreds digit.

## Learning Intention

To multiply and divide

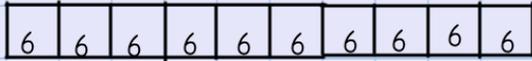
## Success Criteria

On Fire: I can apply my knowledge to solving problems and SATs style questions.

Hotter: I can accurately divide by 10, 100 & 1000.

Hot: I can divide by 10, 100 & 1000 using practical apparatus numbers by a one-digit number using the formal written method.

Dividing whole numbers by 10:



Th	H	T	O
		6	0
			6

$60 \div 10 = \square$

When you divide a whole number by 10, each digit moves one place to the right.

Draw a place value chart to divide numbers below by 10:

90    340    23040    19500

Dividing whole numbers by 100:

When dividing a whole number by 100, each digit moves 2 places to the right.

HTh	TTh	Th	H	T	O
	6	3	2	0	0
			6	3	2

63200 divided by 100 = 632

Now you have a go. Use pv chart to help you

7600    300    105300    84000

Dividing whole numbers by 1000

When dividing a whole number by 1000, each digit moves 3 places to the right.

HTh	TTh	Th	H	T	O
	5	6	1	0	0
			5	6	1

Now you have a go using pv chart and counters.

14000    89000    154000

Now have a go at multiplying the same numbers by 10, 100 and 1000.

What do you notice?

Multiplication is the inverse of division

Division is the inverse of multiplication

Write the number that is 10 times larger than

3

45

910

Write the number that is 10 smaller than

100

36800

25 000 200

How do you get back to the original number?

Copy and complete in your book.

Independent work

I. Complete the division sentences.

- a)  $4,500 \div 10 =$    
 $62,000 \div 10 =$    
 $739,300 \div 10 =$    
 b)  $4,500 \div 100 =$    
 $62,000 \div 100 =$    
 $739,300 \div 100 =$

2. 45,000 divided by 1000  
 3. 34,505,000 divided by 1000  
 4. 8,008,000 divided by 1000

Write  $>$ ,  $<$  or  $=$  to make the statements true.

- a)  $4,900 \div 10$    $4,900 \div 100$   
 b)  $56,000 \div 100$    $65,000 \div 100$   
 c)  $93,000 \div 1,000$    $9,300 \div 100$   
 d)  $5,700 \div 100$    $5,700 \div 1,000$

- $\div 10 = 76$   
  $\div 100 = 76$   
  $\div 1,000 = 76$   
  $\div 1,000 = 30$   
  $\div 1,000 = 300$   
  $\div 1,000 = 3,000$

Number	Number divided by 10	Number divided by 100	Number divided by 1,000
65,000			
	7,200		
		3,500	

a) Dividing a number by 10 and then by 10 again is the same as

\_\_\_\_\_

\_\_\_\_\_

b) Dividing a number by 1,000 is the same as dividing by 10

and then \_\_\_\_\_

\_\_\_\_\_

## Lesson 3

Multiplying decimals by 10, 100 & 1000

## Multiplying decimals by 10, 100 & 1000

### Timestables

1. I think of a number and multiply it by 9.

The answer is 27. What is the number I am thinking of?

2. Cain is planting seeds. He has 108 seeds.

He plants 9 seeds in each row. How many rows does he plant?

3. Balloons come in packs of 9. How many packs do I need buy so that there enough for 81 children?

Rehearse X9 facts

## OMS -rounding whole numbers

Round the numbers to the nearest 10, 100 and 1000

	<i>nearest 10</i>	<i>nearest 100</i>	<i>nearest 1000</i>
234			
312,390			
6,782			
99			

Find all the that numbers round to 140 to the nearest 10.

Find all the numbers that round to 123,400 to the nearest 100.

## Learning Intention

To multiply and divide

## Success Criteria

On fire: I can reason to solve problems and test style questions.

Hotter: I can apply my understanding of multiplying numbers to reasoning questions.

Hot: I can accurately multiply decimals using knowledge of place value.

## Multiplying decimals by 10

What do you remember about multiplying numbers by 10?

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

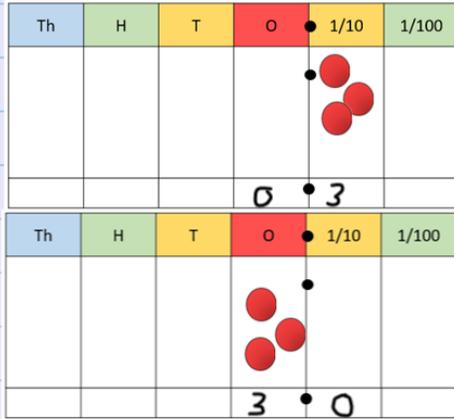
Which counter has the highest value?

How many times greater is the red counter compared to the blue counter?

$$0.3 \times 10 = 3$$

$$0.6 \times 10 =$$

$$0.9 \times 10 =$$

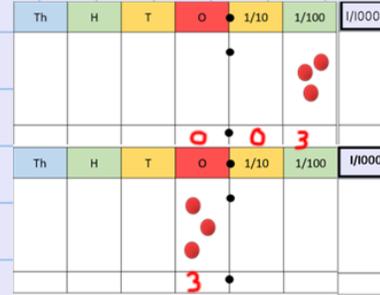


Each digit moves one place to the left. Do we need to write the 0 before the 3?

## Multiplying decimals by 100- move each digit 2 places to the left

100	200	300	400	500	600	700	800	900
10	20	30	40	50	60	70	80	90
1	2	3	4	5	6	7	8	9
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09

$$0.03 \times 100 = 3$$



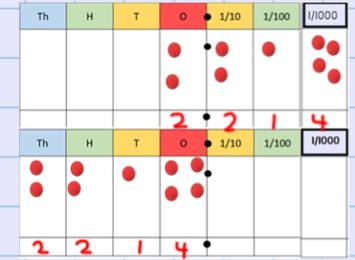
Draw your own place value chart and multiply the numbers by 100

0.1    0.05    0.009

## Multiplying decimals by 1000- move each digit 3 places to the left

$$2.214 \times 1000 =$$

$$2214$$



Now you have a go with the numbers below

$$3.002$$

$$123.001$$

$$9.000$$

$$0.003$$

Ensure you pay attention to the decimal point.  
It does not move. The digits move!

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
M	Hth	TTh	Th	H	T	O	t	h	th
						●			
						●			
						●			

$$3.152 \times 10 =$$

$$3.152 \times 100 =$$

$$3.152 \times 1000 =$$

# Reasoning and problem solving

Copy and complete into your book.

## Independent work

Use your decimal pv grid to multiply decimals by 10, 100 & 1000

$4.4 \times 1 = \square$

$4.4 \times 10 = \square$

$4.4 \times 100 = \square$

$4.4 \times 1,000 = \square$

What do you notice?

Complete the calculations.

a)  $13.44 \times 10 = \square$

b)  $41.4 \times 100 = \square$

c)  $0.415 \times 1,000 = \square$

0.000993

34.0456

210.0345

$7.039 \xrightarrow{\times 10} \square \xrightarrow{\times 10} \square \xrightarrow{\times 10} \square$

$7.039 \xrightarrow{\times 100} \square \xrightarrow{\times 10} \square$

$7.039 \xrightarrow{\times 1,000} \square$

What do you notice? Why does this happen?

Write  $>$ ,  $<$  or  $=$  to compare the number sentences.

$1.4 \times 10 \times 10 \times 10 \bigcirc 1.4 \times 1,000$

$1.4 \times 10 \times 100 \bigcirc 1.4 \times 1,000$

$1.4 \times 10 \times 10 \bigcirc 1.4 \times 1,000$

$1.4 \times 10 \times 2 \bigcirc 1.4 \times 100$

Use the cards to complete the calculation.

You can use each card more than once.

$\square \times \square \times \square \times \square = 2,000$

$0.002 \square \square \square = 2,000$

How many ways is it possible to complete this calculation?

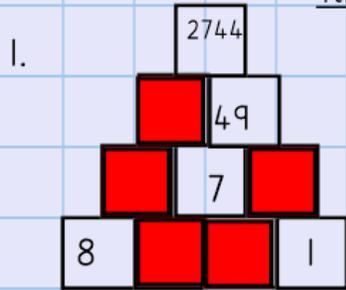
## Lesson 4

Dividing decimals by 10, 100 & 1000

# Write your answers in your book.

## Dividing decimals by 10,100,1000

### Timestables



2. How many nines are there in 63?
3. What are eight groups of 9?
4. Zain is walking along a path. He stops at every 9th step. Can you write the number pattern?
5. Zain is taping a square frame. One side measures 8m. How much tape will he needs for 9 frames?

3. Chant X9

## OMS - solve rounding problems.

It has been reported that the Ferrari 458 Italia will cost from £149 246.00

Round this to the nearest 10

Round this to the nearest 100

Round this to the nearest 1000

A shop sells material in 1 metre lengths. A dress maker needs 3 lengths of material which are the following lengths - 88cm, 189 cm and 80 cm. How many metres of material should she buy?

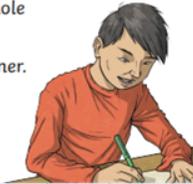
Jiang writes these four numbers:

6000    12 000    34 000    200 000

For each of these numbers, write five numbers that can be rounded to the number when rounded to the nearest 1000.

For one of the numbers, explain the whole range of possible answers.

Compare your explanation with a partner.  
Can you improve your explanation?



## Learning Intention

To multiply and divide

## Success Criteria

On fire: I can reason to solve problems and test style questions

Hotter: I can apply my understanding of dividing numbers to reasoning questions

Hot: I can accurately divide decimals using knowledge of place value.

Recap

What do you do when multiplying a decimal by 10, 100 or 1000?

	X10	X100	X1000
0.345			
2.900			
0.00245			

So when dividing decimals by 10, 100 or 1000, move each digit 1, 2 or 3 places to the right.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
M	Hth	TTh	Th	H	T	O	t	h	th
						•			
							•		
								•	

Divide 4501 by 10, 100 and 1000

Divide 450.1 by 10 and 100

Divide 0.04 by 10

So when dividing decimals by 10, 100 or 1000, move each digit 1, 2 or 3 places to the right.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
M	Hth	TTh	Th	H	T	O	t	h	th
							.		
							.		

Divide 4501 by 10, 100 and 1000

Divide 450.1 by 10 and 100

Divide 0.04 by 10

So when dividing decimals by 10, 100 or 1000, move each digit 1, 2 or 3 places to the right.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	tenths	hundredths	thousandths
M	Hth	TTh	Th	H	T	O	t	h	th
							.		
							.		

Divide 4501 by 10, 100 and 1000

Divide 450.1 by 10 and 100

Divide 0.04 by 10

A number is divided by 10.

The answer is 234.5

What is the original number?

I think of a number and make it a 1000 times smaller.

I write the number 3.981. What is the original number?

### Independent work

1. Copy and complete the following:

$$234 \div 10 =$$

$$234 \div 100 =$$

$$234 \div 1000 =$$

Number	$\div 10$	$\div 100$	$\div 1000$
98141			
45,000,25			
1709			

Complete the diagrams.



What do you notice? Why does this happen?

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### Reasoning and problem solving

Copy and complete in your book.

$$332 \div \square = 0.332$$

$$2.4 \div 200 = \square$$

$$5.09 = \square \div 20$$

Write  $>$ ,  $<$  or  $=$  to compare the number sentences.

$$5,400 \div 10 \div 10 \div 10 \quad \bigcirc \quad 5,400 \div 1,000$$

$$60 \div 100 \div 10 \quad \bigcirc \quad 600 \div 100$$

$$5.7 \div 10 \quad \bigcirc \quad 57 \div 100$$

$$5,601 \div 1,000 \quad \bigcirc \quad 5,601 \div 10$$

Make up your own.

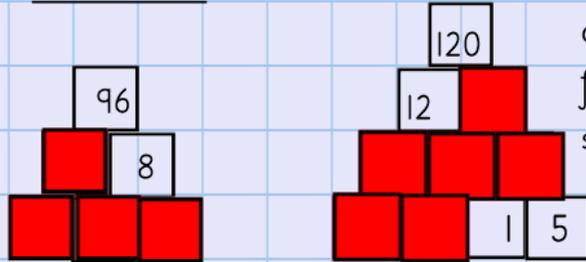
A number divided by 100 is 23.45

What is the original number?

# Lesson 5

Multiplying and dividing numbers by 10, 100 and 1000  
- Reasoning and problem solving

Timestables



Solve the problems and then make one for your partner to solve.

What are 4 lots of 7?

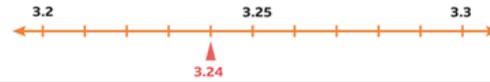
How many packs of 8 pencils can I make using 240 pencils?

Iman is building patterns using 3 sticks for each shape.

How many shapes will she make by using 27 sticks?

OMS- rounding decimals.

Can you use the number line to round 3.24 to the nearest tenth?



Round 19.79 to the nearest tenth.

H	T	O	Tths	Hths
1	9	7	9	

Zain has £8.45. He rounds his money to the nearest whole pound. He writes it as £8.50.

Is he correct? Give your reasons.

Write all the numbers that will round to 3.2 to the nearest tenth.

[Hit the Button - Quick fire maths practise for 6-11 year olds \(topmarks.co.uk\)](https://www.topmarks.co.uk)

## Learning Intention

To multiply and divide

## Success Criteria

On fire: I can solve a range of test style questions

Hotter: I can use reasoning to solve missing number problems

Hot: I can accurately use my knowledge of multiplying and dividing numbers.

Complete the activities in your book.

Let's recap what we have learnt so far about multiplying and dividing numbers by 10, 100, 1000

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	•	tenths	hundredths	thousandths
M	Hth	TTh	Th	H	T	O	•	t	h	th
							•			
							•			

Multiply the numbers below by 10, 100, 1000

1.02	0.009
1000.01	45.001
2003.25	99.902

Copy and complete the table below. Use your place value chart.

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	•	tenths	hundredths	thousandths
M	Hth	TTh	Th	H	T	O	•	t	h	th
							•			
							•			

	$\times 10$	$\div 10$	$\times 100$	$\div 100$	$\times 1000$	$\div 1000$
863	8630	86.3	86300	8.63	863000	0.863
				04.238		
			378			
489						
				0.3		
						0.08

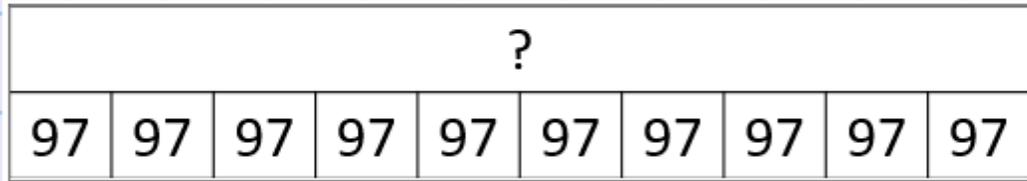
Sam cuts a piece of cloth into 10 equal lengths. Each peice is 10 times smaller than the original length. What was the origianl length of the fabric?

?									
97	97	97	97	97	97	97	97	97	97

A man builds a model tower that is 10cm tall.

The actual tower is 1000 times larger. What is the height of the actual tower?

Sam cuts a piece of cloth into 10 equal lengths. Each peice is 10 times smaller than the original length. What was the origianl length of the fabric?



$$97 \times 10 = 970\text{cm or } 9.7\text{m}$$

A man builds a model tower that is 10cm tall.

The actual tower is 1000 times larger. What is the height of the actual tower?

$$10 \times 1000 = 10\ 000\text{cm or } 100\text{m}$$

## Independent work

1.  $\square \div 10 = 97$

?									
97	97	97	97	97	97	97	97	97	97

2. Find the missing numbers:

100	400
<input type="text"/>	<input type="text"/>
1	4
<input type="text"/>	<input type="text"/>
0.01	<input type="text"/>

3.

80									
<input type="text"/>	?	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>				

4.2 × 200

Rosie: You could do 4.2 × 100 × 2

Amir: I disagree, there are two hundreds so it would be 4.2 × 100 × 100

Dora: I think it'd be 4.2 × 2 × 100

Who is correct? How can you check?

Write the missing number to make this division correct.

0.3 ÷  = 0.03

1 mark

Here are six cards.

× 10	× 100	× 1000
÷ 10	÷ 100	÷ 1000

Use a card to complete each calculation.

5.3  = 0.53

5.3  = 5300

5.3  = 0.053

2 marks

Dexter is solving the calculation 5,400 ÷ 100



Is Dexter correct? \_\_\_\_\_

Explain your reasoning.

Complete these calculations.

15 × 100 =

× 10 = 1500

- 100 = 150

150 - 10 =

3 marks

Amir multiplies 3.5 by 100. His answer is 3.500  
Is he correct? Explain your reasoning.

## Test style reasoning

Circle the number that is **10 times** greater than nine hundred and seven.

9,700    907    9,007    970    9,070

1 mark

Toby places 10 coins next to each other to create a line. What is the length of his line?

A 5p coin has a diameter of 1.8 centimetres.



His friend uses 5p coins to make another line. His line measures 180cm. How many coins did the friend use?