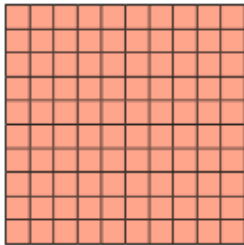


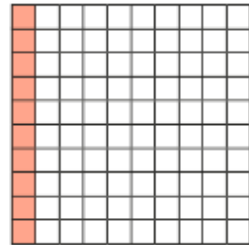
## Decimals as fractions (2)

1 This grid represents 1



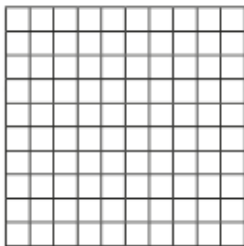
This grid represents 0.1 or

$$\frac{10}{100} \text{ or } \frac{1}{10}$$

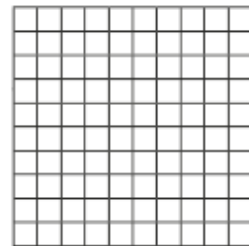


Colour the hundred squares to represent the fractions.

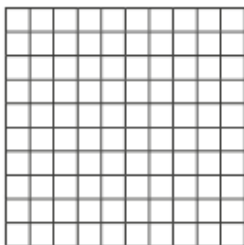
a)  $\frac{2}{100}$



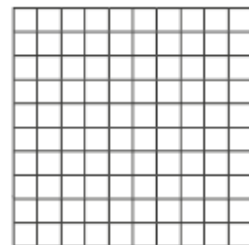
c)  $\frac{20}{100}$



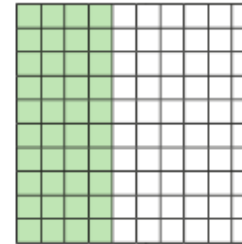
b)  $\frac{2}{10}$



d)  $\frac{90}{100}$



2 Complete the numbers to show how much of the square is shaded.



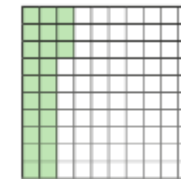
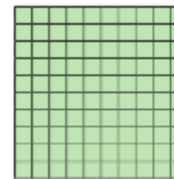
$$\frac{\square}{100}$$

$$\frac{\square}{10}$$

$$0.\dots$$

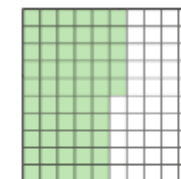
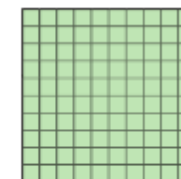
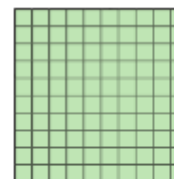
3 What fractions and decimals are represented?

a)



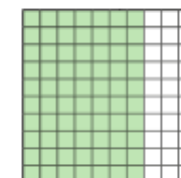
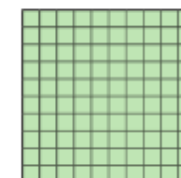
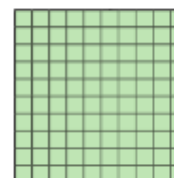
$$1 \frac{23}{100} = \square$$

b)



$$\square \frac{\square}{100} = \square$$

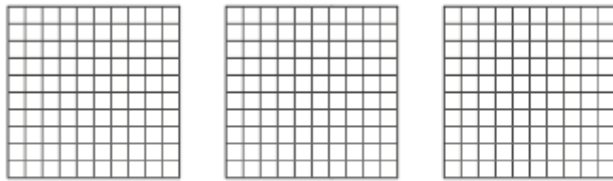
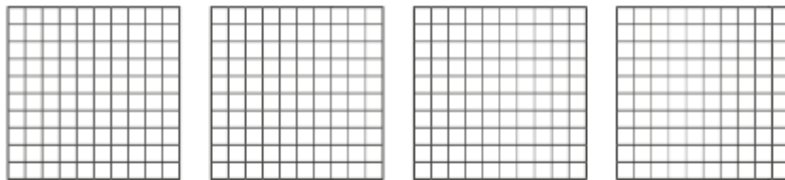
c)



$$\square \frac{\square}{10} = \square$$

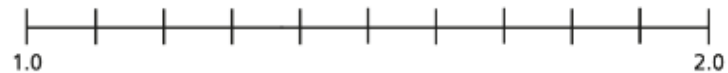
4

a) Represent 2.15

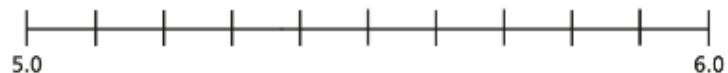
b) Represent  $3\frac{7}{10}$ 

5

a) Label the number line with the decimals.



b) Label the number line with the fractions.



6

Complete the table.

Decimal	Decimal (expanded form)	Fraction	Fraction (expanded form)	In words
2.13	$2 + 0.1 + 0.03$	$2\frac{13}{100}$	$2 + \frac{1}{10} + \frac{3}{100}$	2 ones, 1 tenth and 3 hundredths
4.37		$4\frac{\square}{100}$		
	$5 + 0.6 + 0.02$			
				8 ones and 2 hundredths

7

Write the decimals as fractions.

Give your answer as a mixed number.

a)  $32.6 = \square\frac{\square}{10}$

c)  $13.08 = \square\frac{\square}{100}$

b)  $2.03 = \square\frac{\square}{100}$

d)  $3.98 = \square\frac{\square}{100}$

8

Use the digits 3, 4 and 5 to complete the decimal number.




How many different numbers can you make?


## Understand thousandths

1 Tommy is using base 10 to represent decimals.

He uses  to represent 1 whole.

He uses  to represent  $\frac{1}{10}$  or 0.1

He uses  to represent  $\frac{1}{100}$  or 0.01

He uses  to represent  $\frac{1}{1000}$  or 0.001

What decimals are represented?

a) 

b) 

c) 



2 a) Represent each number using base 10

0.512

1.352

2.003

b) Use your representations to help you complete the statements.

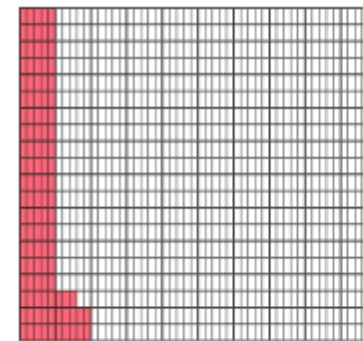
$$0.512 = 0.5 + 0.01 + \boxed{\phantom{000}}$$

$$1.352 = 1 + \boxed{\phantom{000}} + \boxed{\phantom{000}} + \boxed{\phantom{000}}$$

$$2.003 = \underline{\hspace{2cm}}$$

3 Here is a thousand square.

Part of the square has been coloured.



a) Why do you think it is called a thousand square?

\_\_\_\_\_

b) What fraction of the square has been coloured?

$\frac{\boxed{\phantom{000}}}{1000}$

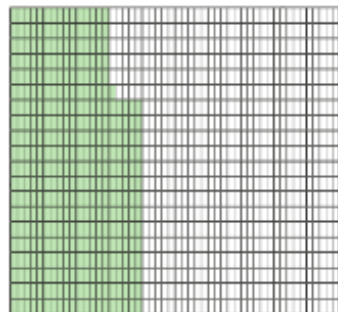
c) Write the fraction as a decimal.



- 4 What fraction of each square has been shaded?

Write each number as a fraction and as a decimal.

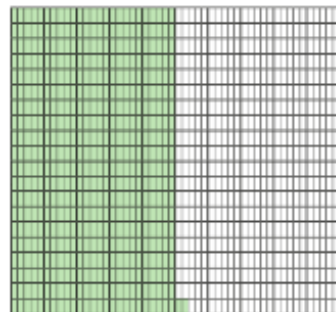
a)



fraction =

decimal =

b)

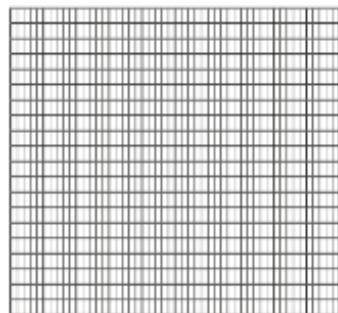


fraction =

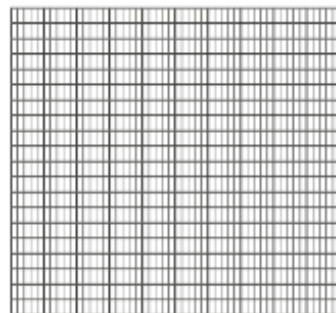
decimal =

- 5 Colour the grids to represent the fraction and decimal.

a)  $\frac{73}{1000}$



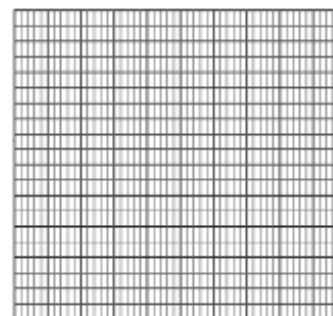
b) 0.302



- 6 Represent these numbers on a place value chart.

a) 1.372      b) 0.091      c) 3.542

- 7 Show that  $\frac{400}{1000}$  is the same as 0.4



- 8 Write the numbers represented by the place value charts.

a)

Ones	Tenths	Hundredths	Thousandths
1 1 1 1	0.1 0.1	0.01 0.01 0.01 0.01 0.01 0.01 0.01	0.001 0.001 0.001 0.001 0.001 0.001

b)

Ones	Tenths	Hundredths	Thousandths
	0.1 0.1 0.1 0.1 0.1		0.001 0.001 0.001 0.001



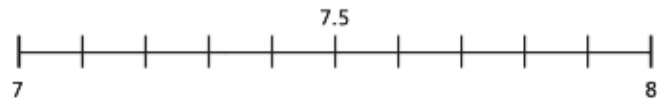
## Rounding decimals



**1** Show the position of each number on the number line.

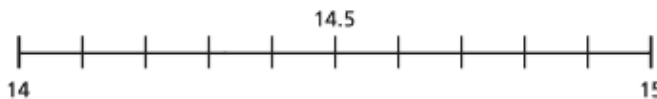
Use the number line to round these decimals to the nearest whole number.

a) 7.2



The nearest whole number is

b) 14.8



The nearest whole number is

c) 6.5



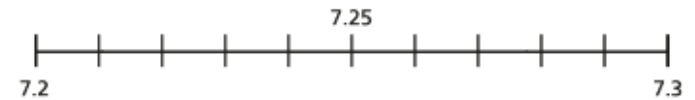
The nearest whole number is

Explain to a partner how to round decimal numbers to the nearest whole number.



**2** Use the number line to round these decimal numbers to the nearest tenth and the nearest whole number.

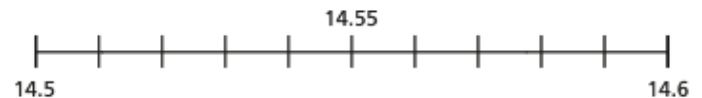
a) 7.23



The nearest tenth is

The nearest whole number is

b) 14.56



The nearest tenth is

The nearest whole number is

c) 6.45



The nearest tenth is

The nearest whole number is

Explain to a partner how to round decimal numbers to one decimal place.



3 a) When rounding to the nearest tenth, how many digits will there be after the decimal point?

b) Round each number to one decimal place.

1.33	<input type="text"/>	4.03	<input type="text"/>
1.34	<input type="text"/>	4.04	<input type="text"/>
1.35	<input type="text"/>	4.05	<input type="text"/>
1.36	<input type="text"/>	4.06	<input type="text"/>
1.37	<input type="text"/>	4.07	<input type="text"/>

4 Round each number to the nearest tenth.

a) 4.21	<input type="text"/>	d) 11.86	<input type="text"/>	g) 12.92	<input type="text"/>
b) 8.09	<input type="text"/>	e) 5.67	<input type="text"/>	h) 10.65	<input type="text"/>
c) 4.84	<input type="text"/>	f) 0.15	<input type="text"/>		

5 Circle each decimal that rounds to 6.2

6.32    6.23    6.27    6.17    6.12    6.25

Explain your reasoning.

\_\_\_\_\_

\_\_\_\_\_

6 Here are the weights in kilograms of some parcels.



3.48 kg



1.42 kg



10.65 kg



1.03 kg

a) Round the weight of each parcel to 1 decimal place.

kg    kg    kg    kg

b) The weight of each parcel has been rounded to the nearest 100g.

Is this true or false? \_\_\_\_\_

Talk about it with a partner.

7 Amir is thinking of a number.

Rounded to the nearest whole his number is 5

Rounded to the nearest tenth his number is 4.8

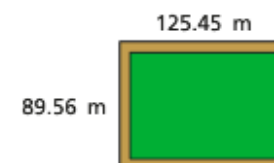
Write at least four different numbers that Amir could be thinking of.

\_\_\_\_\_

\_\_\_\_\_

8 A farmer is building a new fence for her sheep field.

Here are the measurements.



She wants to build a fence around the whole field.

Estimate how much fencing you think she will need.

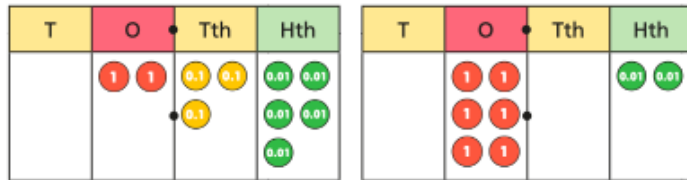
Talk about your estimate with a partner.



# Order and compare decimals

1 Which number is greater?

Tick your answer.



Explain your answer.

---



---

2 Which is the smaller number?

Tick your answer.



Explain your answer.

---



---

3 Use place value counters to make each of the numbers.



a) Which is the greatest number?

b) Which is the smallest number?

How do you know?

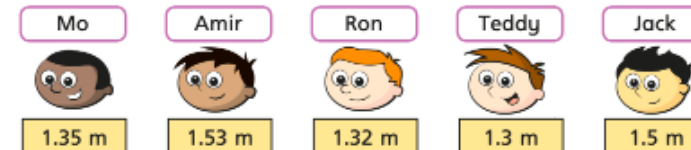
4 Here are some numbers in a place value chart.

Ones	Tenths	Hundredths	Thousandths
3	2	3	4
3	1	6	
3	2	0	8
3	1	4	5

Write the numbers in order, starting with the greatest.

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5 Mo, Amir, Ron, Teddy and Jack are measuring their heights with a metre rule.

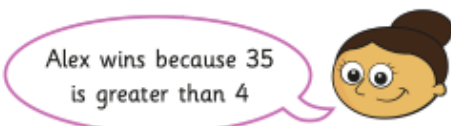


Write the names and heights of the children in order from shortest to tallest.

Name	Height



- 6 Alex and Dora are competing in the long jump.  
Alex jumps 1.35 metres and Dora jumps 1.4 metres.



- a) Is Dora correct? \_\_\_\_\_

Talk about it with a partner.

- b) Kim joins in the competition.

What is the shortest distance she can jump to go into the lead?

\_\_\_\_\_

- 7 Write the numbers in ascending order.

- a) 0.45      0.654      0.546      0.405

--	--	--	--

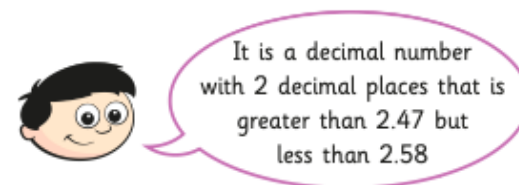
- b) 7.2 kg      7.212 kg      7.21 kg

--	--	--

- c) 25.391      25.309      25.093      25.193

--	--	--	--

- 8 Dexter is thinking of a number.



What possible numbers could Dexter be thinking of?

\_\_\_\_\_

\_\_\_\_\_

- 9 Tick the numbers that are equal to 2.5

Circle the numbers that are greater than 2.5

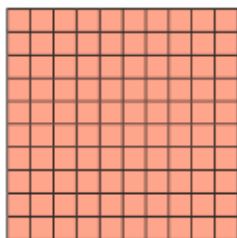
You will need to convert the mixed numbers to decimal numbers first.

2.05	$2\frac{5}{10}$	$2\frac{1}{2}$
$2\frac{5}{100}$	2.53	$2\frac{3}{5}$
2.501	$2\frac{80}{100}$	$2\frac{3}{10}$



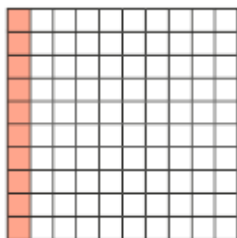
## Decimals as fractions (2)

1 This grid represents 1



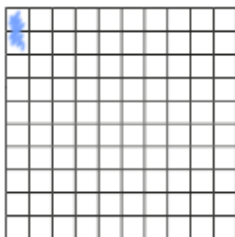
This grid represents 0.1 or

$$\frac{10}{100} \text{ or } \frac{1}{10}$$

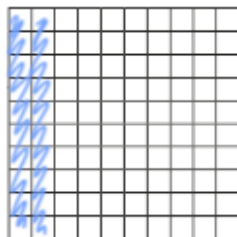


Colour the hundred squares to represent the fractions.

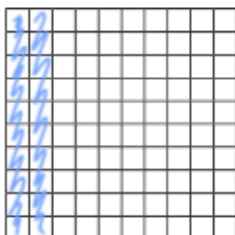
a)  $\frac{2}{100}$



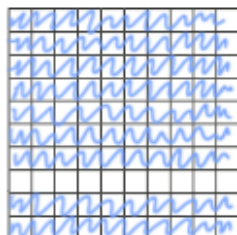
c)  $\frac{20}{100}$



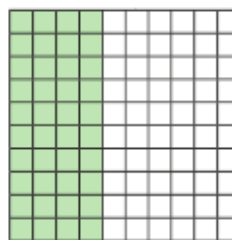
b)  $\frac{2}{10}$



d)  $\frac{90}{100}$



2 Complete the numbers to show how much of the square is shaded.



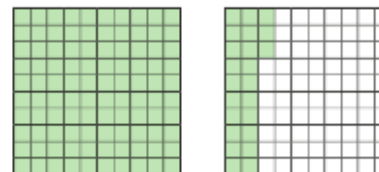
$$\frac{40}{100}$$

$$\frac{4}{10}$$

$$0.4$$

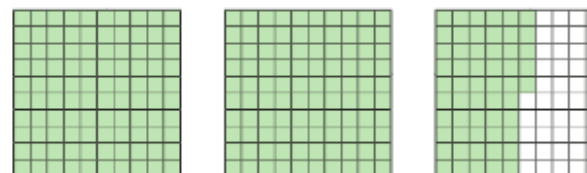
3 What fractions and decimals are represented?

a)



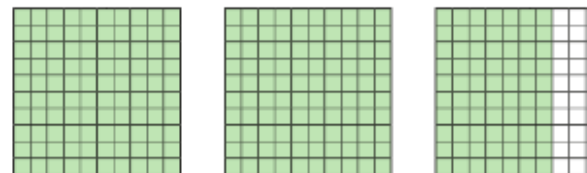
$$1 \frac{23}{100} = 1.23$$

b)



$$2 \frac{55}{100} = 2.55$$

c)

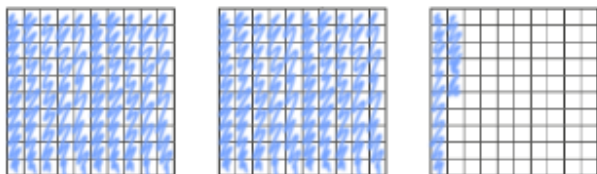
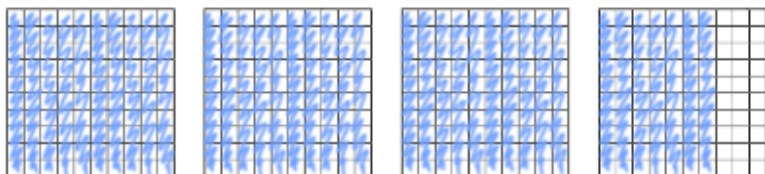


$$2 \frac{7}{10} = 2.7$$



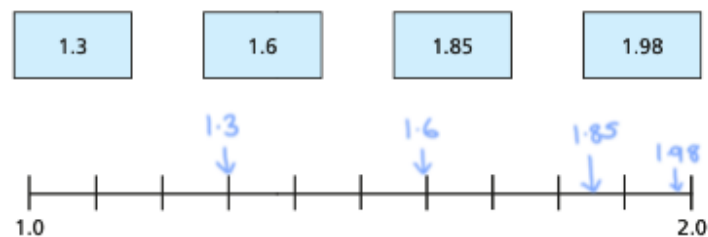
4

a) Represent 2.15

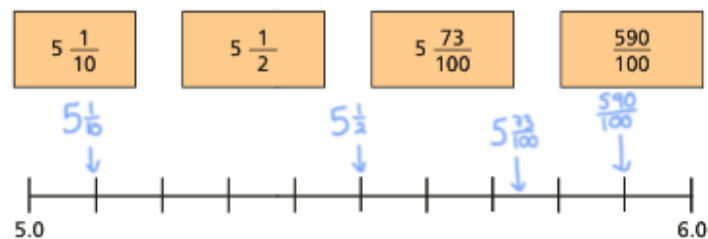
b) Represent  $3\frac{7}{10}$ 

5

a) Label the number line with the decimals.



b) Label the number line with the fractions.



6

Complete the table.

Decimal	Decimal (expanded form)	Fraction	Fraction (expanded form)	In words
2.13	$2 + 0.1 + 0.03$	$2\frac{13}{100}$	$2 + \frac{1}{10} + \frac{3}{100}$	2 ones, 1 tenth and 3 hundredths
4.37	$4 + 0.3 + 0.07$	$4\frac{37}{100}$	$4 + \frac{3}{10} + \frac{7}{100}$	4 ones, 3 tenths and 7 hundredths
5.62	$5 + 0.6 + 0.02$	$5\frac{62}{100}$	$5 + \frac{6}{10} + \frac{2}{100}$	5 ones, 6 tenths and 2 hundredths
8.02	$8 + 0.02$	$8\frac{2}{100}$	$8 + \frac{2}{100}$	8 ones and 2 hundredths

7

Write the decimals as fractions.

Give your answer as a mixed number.

a)  $32.6 = 32\frac{6}{10}$

c)  $13.08 = 13\frac{8}{100}$

b)  $2.03 = 2\frac{3}{100}$

d)  $3.98 = 3\frac{98}{100}$

8

Use the digits 3, 4 and 5 to complete the decimal number.

eg.  $3\ 4\ .\ 0\ 5$

How many different numbers can you make?




## Understand thousandths

- 1 Tommy is using base 10 to represent decimals.

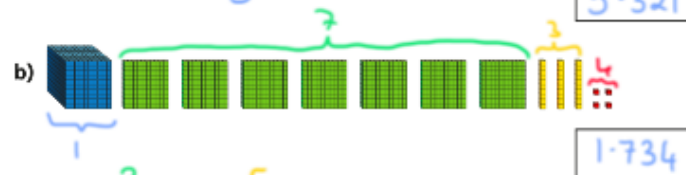
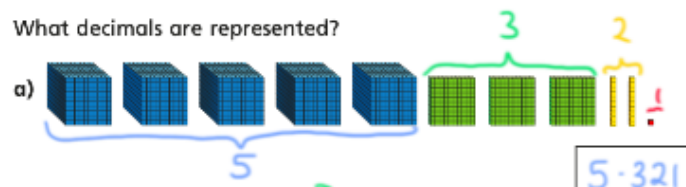
He uses  to represent 1 whole.

He uses  to represent  $\frac{1}{10}$  or 0.1

He uses  to represent  $\frac{1}{100}$  or 0.01

He uses  to represent  $\frac{1}{1000}$  or 0.001

What decimals are represented?



- 2 a) Represent each number using base 10

0.512

1.352

2.003

- b) Use your representations to help you complete the statements.

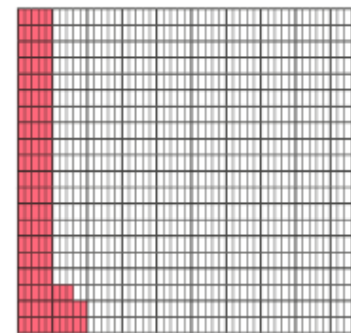
$$0.512 = 0.5 + 0.01 + \boxed{0.002}$$

$$1.352 = 1 + \boxed{0.3} + \boxed{0.05} + \boxed{0.002}$$

$$2.003 = \underline{2 + 0.003}$$

- 3 Here is a thousand square.

Part of the square has been coloured.



- a) Why do you think it is called a thousand square?

It is split into one thousand equal parts.

- b) What fraction of the square has been coloured?

$\frac{113}{1000}$

- c) Write the fraction as a decimal.

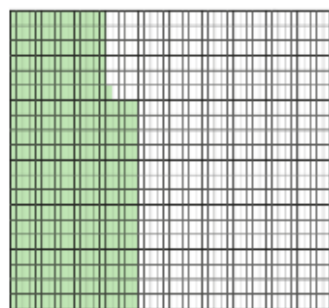
0.113



- 4 What fraction of each square has been shaded?

Write each number as a fraction and as a decimal.

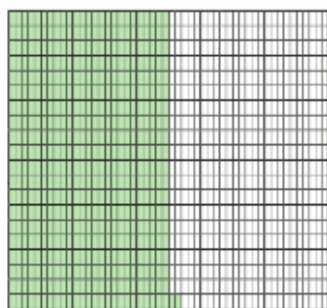
a)



fraction =  $\frac{37}{1000}$

decimal = 0.371

b)

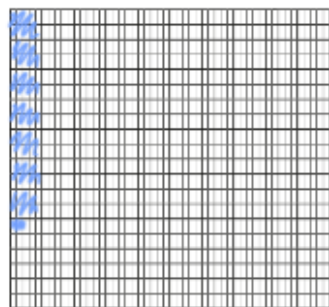


fraction =  $\frac{502}{1000}$

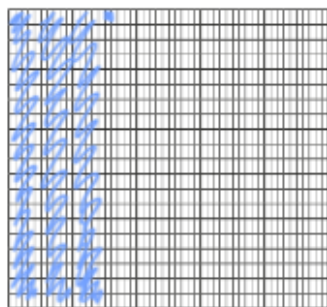
decimal = 0.502

- 5 Colour the grids to represent the fraction and decimal.

a)  $\frac{73}{1000}$



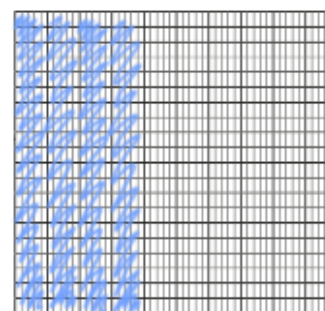
b) 0.302



- 6 Represent these numbers on a place value chart.

a) 1.372      b) 0.091      c) 3.542

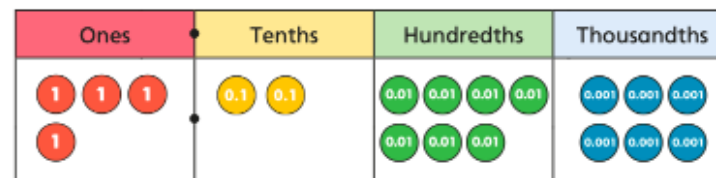
- 7 Show that  $\frac{400}{1000}$  is the same as 0.4



400 out of 1,000  
equal parts =  $\frac{400}{1000}$   
4 out of 10 equal  
columns =  $\frac{4}{10} = 0.4$

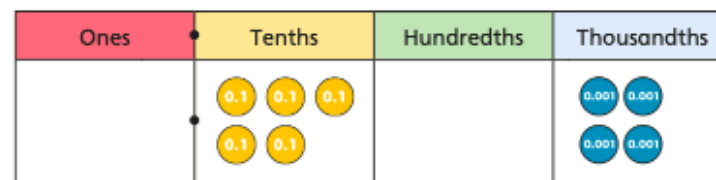
- 8 Write the numbers represented by the place value charts.

a)



4.276

b)



0.504



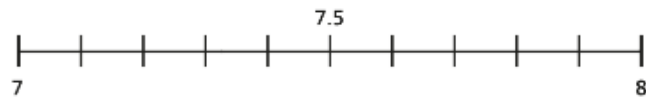
## Rounding decimals



**1** Show the position of each number on the number line.

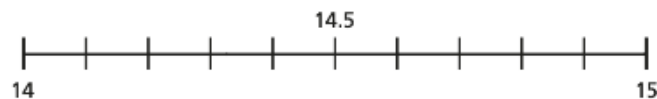
Use the number line to round these decimals to the nearest whole number.

a) 7.2



The nearest whole number is

b) 14.8



The nearest whole number is

c) 6.5



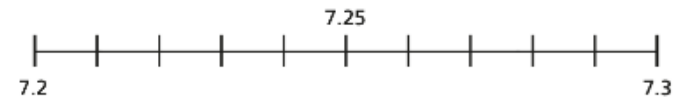
The nearest whole number is

Explain to a partner how to round decimal numbers to the nearest whole number.



**2** Use the number line to round these decimal numbers to the nearest tenth and the nearest whole number.

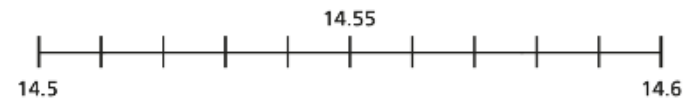
a) 7.23



The nearest tenth is

The nearest whole number is

b) 14.56



The nearest tenth is

The nearest whole number is

c) 6.45



The nearest tenth is

The nearest whole number is

Explain to a partner how to round decimal numbers to one decimal place.



3 a) When rounding to the nearest tenth, how many digits will there be after the decimal point? 1

b) Round each number to one decimal place.

1.33	<span style="border: 1px solid black; padding: 2px 10px;">1.3</span>	4.03	<span style="border: 1px solid black; padding: 2px 10px;">4.0</span>
1.34	<span style="border: 1px solid black; padding: 2px 10px;">1.3</span>	4.04	<span style="border: 1px solid black; padding: 2px 10px;">4.0</span>
1.35	<span style="border: 1px solid black; padding: 2px 10px;">1.4</span>	4.05	<span style="border: 1px solid black; padding: 2px 10px;">4.1</span>
1.36	<span style="border: 1px solid black; padding: 2px 10px;">1.4</span>	4.06	<span style="border: 1px solid black; padding: 2px 10px;">4.1</span>
1.37	<span style="border: 1px solid black; padding: 2px 10px;">1.4</span>	4.07	<span style="border: 1px solid black; padding: 2px 10px;">4.1</span>

4 Round each number to the nearest tenth.

a) 4.21	<span style="border: 1px solid black; padding: 2px 10px;">4.2</span>	d) 11.86	<span style="border: 1px solid black; padding: 2px 10px;">11.9</span>	g) 12.92	<span style="border: 1px solid black; padding: 2px 10px;">12.9</span>
b) 8.09	<span style="border: 1px solid black; padding: 2px 10px;">8.1</span>	e) 5.67	<span style="border: 1px solid black; padding: 2px 10px;">5.7</span>	h) 10.65	<span style="border: 1px solid black; padding: 2px 10px;">10.7</span>
c) 4.84	<span style="border: 1px solid black; padding: 2px 10px;">4.8</span>	f) 0.15	<span style="border: 1px solid black; padding: 2px 10px;">0.2</span>		

5 Circle each decimal that rounds to 6.2

6.32   6.23   6.27   6.17   6.12   6.25

Explain your reasoning.

They are greater than 6.15 but less than 6.25

6 Here are the weights in kilograms of some parcels.



3.48 kg



1.42 kg



10.65 kg



1.03 kg

a) Round the weight of each parcel to 1 decimal place.

3.5 kg   1.4 kg   10.7 kg   1.0 kg

b) The weight of each parcel has been rounded to the nearest 100g.

Is this true or false? true

Talk about it with a partner.

7 Amir is thinking of a number.

Rounded to the nearest whole his number is 5

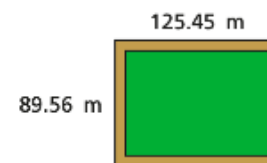
Rounded to the nearest tenth his number is 4.8

Write at least four different numbers that Amir could be thinking of.

c.g. 4.75, 4.79, 4.81, 4.84

8 A farmer is building a new fence for her sheep field.

Here are the measurements.



She wants to build a fence around the whole field.

Estimate how much fencing you think she will need.

$$125.5 + 89.6 + 125.5 + 89.6 = 251 + 179.2 = 430.2 \text{ m}$$

Talk about your estimate with a partner.

## Order and compare decimals

1 Which number is greater?

Tick your answer.



Explain your answer.

It has more ones.

2 Which is the smaller number?

Tick your answer.



Explain your answer.

It has fewer tenths.

3 Use place value counters to make each of the numbers.

4.13

4.08

5.1

a) Which is the greatest number?

5.1

b) Which is the smallest number?

4.08

How do you know?

4 Here are some numbers in a place value chart.

Ones	Tenths	Hundredths	Thousandths
3	2	3	4
3	1	6	
3	2	0	8
3	1	4	5

Write the numbers in order, starting with the greatest.

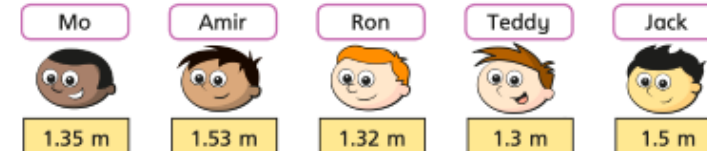
3.234

3.208

3.16

3.145

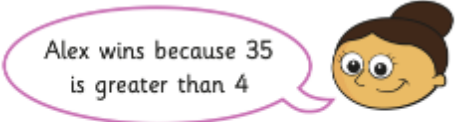
5 Mo, Amir, Ron, Teddy and Jack are measuring their heights with a metre rule.



Write the names and heights of the children in order from shortest to tallest.

Name	Height
Teddy	1.3m
Ron	1.32m
MO	1.35m
Jack	1.5m
Amir	1.52m

- 6 Alex and Dora are competing in the long jump.  
Alex jumps 1.35 metres and Dora jumps 1.4 metres.



a) Is Dora correct? No

Talk about it with a partner.

b) Kim joins in the competition.

What is the shortest distance she can jump to go into the lead?

1.41m

- 7 Write the numbers in ascending order.

a) 0.45      0.654      0.546      0.405

0.405      0.45      0.546      0.654

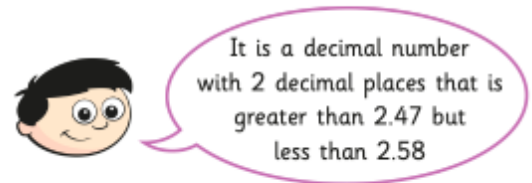
b) 7.2 kg      7.212 kg      7.21 kg

7.2kg      7.21kg      7.212kg

c) 25.391      25.309      25.093      25.193

25.093      25.193      25.309      25.391

- 8 Dexter is thinking of a number.



What possible numbers could Dexter be thinking of?

2.48, 2.49, 2.50, 2.51, 2.52, 2.53, 2.54, 2.55, 2.56, 2.57

- 9 Tick the numbers that are equal to 2.5

Circle the numbers that are greater than 2.5

You will need to convert the mixed numbers to decimal numbers first.

2.05

$2\frac{5}{10}$  ✓

$2\frac{1}{2}$  ✓

$2\frac{5}{100}$

2.53

$2\frac{3}{5}$

2.501

$2\frac{80}{100}$

$2\frac{3}{10}$