

Year 6 Maths

Week 14 Lesson 3

Decimals – Three Decimal Places



In this lesson you will:

- Identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1,000 giving answers up to three decimal places;
- Solve problems which require answers to be rounded to specified degrees of accuracy.



Reasoning 1

Sort the numbers into the table.

8.293

8.586

8.219

8.189

	> 8.291	< 8.291
value > 7 in thousandths column		
value < 7 in thousandths column		

Reasoning 1

Sort the numbers into the table.

8.293

8.586

8.219

8.189

	> 8.291	< 8.291
value > 7 in thousandths column		8.219 8.189
value < 7 in thousandths column	8.293 8.586	

Problem Solving 1

Barney is thinking of a number.



My number has 3 decimal places.

The tenths digit is >6 .

It is between 7.69 and 7.75

The hundredths digit is smaller than the thousandths digit.

What could Barney's number be? Find eight possibilities.

Problem Solving 1

Barney is thinking of a number.



My number has 3 decimal places.

The tenths digit is >6 .

It is between 7.69 and 7.75

The hundredths digit is smaller than the thousandths digit.

What could Barney's number be? Find eight possibilities.

Various possible answers, for example:

7.701, 7.702, 7.712, 7.703, 7.713, 7.723, 7.704, 7.714, 7.724, 7.734

Reasoning 2

Which is the odd one out?

A

5.055

B

5 ones, 5
hundredths and
5 thousandths

C

Five point five
five

D

505 hundredths
and 5
thousandths

Give the number in digits and explain your answer.

Reasoning 2

Which is the odd one out?

- A **5.055**
- B 5 ones, 5 hundredths and 5 thousandths
- C Five point five five**
- D 505 hundredths and 5 thousandths

Give the number in digits and explain your answer.

C is the odd one out because C = 5.55 and the others describe 5.055

Main Tasks – part i

Level 1

1a. Sort the numbers into the table.

2.51

2.05

2.91

2.11

	> 2.5	< 2.5
value > 2 in hundredths column		
value < 2 in hundredths column		

Are there any empty boxes?
Explain why.



R

2a. Barney is thinking of a number.



My number has
2 decimal places.

The hundredths value is
< 2.

It is a number between
4.56 and 5.03

What could Barney's number be?
Find four possibilities.



PS

Level 2

4a. Sort the numbers into the table.

1.901

1.665

1.799

1.909

	> 1.856	< 1.856
value > 8 in tenths column		
value < 8 in tenths column		

Are there any empty boxes?
Explain why.



R

5a. Ollie is thinking of a number.



My number has
3 decimal places.

The hundredths digit is > 4.

It is between 2.87 and
2.843

The thousandths digit is
greater than the ones digit.

What could Ollie's number be?
Find eight possibilities.



PS

Level 3

7a. Sort the numbers into the table.

5.057

5.073

5.9

5.007

	> 5.069	< 5.069
Number > 504 hundredths		
Number < 5,040 thousandths		

Are there any empty boxes?
Explain why.



R

8a. Mairi is thinking of a number.



My number has
3 decimal places.

It has more than 70
hundredths.

It is between 9 and 8.843

The thousandth digit is
greater than the ones digit.

What could Mairi's number be?
Find ten possibilities.



PS

Main Tasks – part ii

Level 1

3a. Which is the odd one out?

A

Five ones,
two tenths
and five
hundredths

B

Five point
five two

C

5.25

Give the number in digits and explain your answer.



R

Level 2

6a. Which is the odd one out?

A

7 ones, 3
hundredths and
9 thousandths

B

seven ones and
three hundredths
and nine
thousandths

C

Seven point
zero three nine

D

7,039

Give the number in digits and explain your answer.



R

Level 3

9a. Which is the odd one out?

A

45 tenths and
29 thousandths

B

4 point 5, 2, 9

C

Forty five point
2, 9

D

4.529

Give the number in digits and explain your answer.



R

Developing

1a.

	2.05
2.51, 2.91	2.11

One box is empty as none of the numbers are greater than 2.5 with a value greater than 2 in the hundredths column.

2a. Various answers, for example:

4.61, 4.71, 4.81, 4.91, 5.01

3a. B: 5.52; the others describe 5.25.

Expected

4a.

1.901, 1.909	
	1.665, 1.799

Two boxes are empty because none of the numbers that are > 1.856 have a value of < 8 in the tenths column, and none that are < 1.856 have a value of > 8 in the tenths column.

5a. Various answers, for example:

2.853, 2.854, 2.855, 2.856, 2.857, 2.858, 2.859, 2.863, 2.864, 2.865, 2.866, 2.867

6a. D: 7039; the others describe 7.039

Greater Depth

7a.

5.073, 5.9	5.057
	5.007

There is one empty box because no numbers can be > 5.069 if they have less than 5,040 thousandths (5.04).

8a. Various answers, for example:

8.849, 8.859, 8.869, 8.879, 8.889, 8.899, 8.949, 8.959, 8.969, 8.979, 8.989, 8.999

9a. C: 45.29; the others describe 4.529

Here are the answers. How did you do?

There's going to be two more pages of questions. If you made some mistakes then great! Mistakes are brilliant as we remember them and learn from them.

The following questions are similar to the previous ones, so apply what you learnt from the previous ones.

You may also want to move up a level if you're feeling confident.

Main Tasks – part iii

Level 1

1b. Sort the numbers into the table.

0.99

1.09

10.01

1.19

	> 1	< 1
value > 8 in hundredths column		
value < 8 in hundredths column		

Are there any empty boxes?
Explain why.



R

2b. Jessica is thinking of a number.



My number is between 20 and 21 and it has 2 decimal places.

The tenths digit is larger than the hundredths.

The hundredths digit is > 3.

What could Jessica's number be?
Find four possibilities.



PS

Level 2

4b. Sort the numbers into the table.

9.609

8.655

9.906

8.609

	> 8.7	< 8.7
value > 7 in tenths column		
< 70 hundredths		

Are there any empty boxes?
Explain why.



R

5b. Abbie is thinking of a number.



My number has 3 decimal places.

The hundredths column has a zero value.

My number is between 5.939 and 5.838.

What could Abbie's number be?
Find eight possibilities.



PS

Level 3

7b. Sort the numbers into the table.

0.787

0.599

0.955

0.588

	> 0.679	< 0.679
Number > 60 hundredths		
Number < 600 thousandths		

Are there any empty boxes?
Explain why.



R

8b. Hakeem is thinking of a number.



My number has 1 decimal place.

It has more than 20 hundredths.

It is between 8.035 and 10.536

What could Hakeem's number be?
Find ten possibilities.



PS

Main Tasks – part iv

Level 1

3b. Which is the odd one out?

A

24.07

B

Twenty four and seven tens

C

Twenty four point zero seven

Give the number in digits and explain your answer.



R

Level 2

6b. Which is the odd one out?

A

Two tens, four hundredths and seven thousandths

B

Twenty point zero,4,7

C

Twenty plus forty seven thousandths

D

20.47

Give the number in digits and explain your answer.



R

Level 3

9b. Which is the odd one out?

A

23.054

B

Twenty three point five four

C

Two tens, three ones, five hundredths and four thousandths

D

Two hundred and thirty tenths and fifty four thousandths

Give the number in digits and explain your answer.



R

Developing

1b.

1.09, 1.19	0.99
10.01	

One box is empty as none of the numbers are less than 1 with a value less than 8 in the hundredths.

2b. Various answers, for example:

20.54, 20.64, 20.74, 20.84, 20.94, 20.65, 20.75, 20.85, 20.95, 20.76, 20.86, 20.96,

3b. B: 24.7; the others describe 24.07.

Expected

4b.

9.906	
9.609	8.665, 8.609

One box is empty because none of the numbers that are < 8.7 have a value of > 7 in the tenths column.

5b. Various answers, for example:

5.901, 5.902, 5.903, 5.904, 5.905, 5.906, 5.907, 5.908, 5.909

6b. D: 20.47; the others describe 20.047

Greater Depth

7b.

0.787, 0.955	
	0.588, 0.599

There are two empty boxes because no numbers can be < 0.679 , if they have more than 60 hundredths (0.6). Nor can they be > 0.679 if they have less than 600 thousandths (0.6).

8b. Various answers, for example:

8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 10.3, 10.4, 10.5

9b. B: 23.54; the others describe 23.054

Well done!

If there's anything you are still unsure of from today's lesson please contact your teacher.