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**FUNCTIONAL SKILLS**

Maths Level 2



**Area: Numbers and the number system**

Criterion: 9. Order, approximate and compare decimals

**Ordering and comparing decimals**

When working with decimal numbers, it's essential to understand the place value of each digit.

**Whole number part**

The digits to the left of the decimal point represent the whole number (or integer).

Each position to the left increases by a power of ten (units, tens, hundreds and so on).

63 is the whole part of the number.

.051 is the decimal part of the number.

**63.051**

**Decimal part**

The digits to the right of the decimal point represent parts of a whole.

Each position to the right decreases by a power of ten (tenths, hundredths, thousandths and so on).

We can compare the size of decimal numbers by looking at each place value **from left to right**.

For example, if we compare 63.051 and 63.12, we can see that they both have the same number of tens and units (or ones). However, when we compare the tenths, or first decimal place, we can see that 63.12 has a greater number of tenths. Therefore, 63.12 is greater than 63.051

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Tens | Units (ones) |  | Tenths | Hundredths | Thousandths |
| **6** | **3** | **.** | **0** | **5** | **1** |
| **6** | **3** | **.** | **1** | **2** | **0** |

**Top tips:** you can fill any empty place value spaces at the end of a number with a place holder, or ‘0’, so that the number of digits is the same and easier to compare. This is shown by the blue ‘0’ above.

Some learners find it useful to draw out a place value table so they can make sure that digits are placed in the correct column when comparing or ordering numbers.

**Question 1**

Place the following decimals in order from **smallest to largest**:

7.12

3.45

8.67

2.98

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 2**

Place the following decimals in order from **smallest to largest**:

5.34

1.7

6.89

4.201

(Show your working out.)

(1 mark)

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**Question 3**

Place the following decimals in order from **largest to smallest**:

9.5

1.293

4.56

3.7

(Show your working out.)

(1 mark)

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**Exam practice 1**

Place the following decimals in order from **largest to smallest**:

7.819

5.7

2.364

6.54

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Rounding decimals**

You may be asked to round decimals to:

* 1 decimal place (dp)
* 2 decimal places
* 3 decimal places
* the nearest whole number.

You will also need this skill if you are asked to approximate or estimate an answer. Below are 5 steps you can follow to accurately round decimals.

1. Identify place value
2. Locate the rounding digit
3. Look at the next digit
4. Apply the rounding rule
5. Remove the remaining digits

Let’s look at an example: round 45.67 to the **nearest whole number**.

1. **Identify the place value**: this is what we are rounding to. In this case, it’s the nearest whole number.
2. **Locate the rounding digit**: this is the number in place value above. In the number 45.67, the whole number is 45.

45.67

1. **Look at the next digit**: look immediately right. This is the number that tells us whether to round up or down. The number 6 is to the right of 45.

45.67

1. **Apply the rounding rule**: if the number to the right is more than 5, we round up. If it is less than 5, the rounding digit stays the same.

6 is great than 5. Therefore, we round up. 45 will become 46.

1. **Remove the remaining digits**: remove any digits that come after the rounding digit. In this case, we need to remove anything that comes after the whole number.

Drop the .67

45.67 rounds to 46

**Question 4**

Complete the table below by rounding the figure 999.81365 to:

|  |  |
| --- | --- |
| **Place value** | **Answer** |
| the nearest whole number |  |
| 1 decimal place |  |
| 2 decimal places |  |
| 3 decimal places |  |

(Show your working out.)

(4 marks)

|  |
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|  |

**Question 5**

Complete the table below by rounding the figure 231.4617 to:

|  |  |
| --- | --- |
| **Place value** | **Answer** |
| the nearest whole number |  |
| 1 decimal place |  |
| 2 decimal places |  |
| 3 decimal places |  |

(Show your working out.)

(4 marks)

|  |
| --- |
|  |

**Exam practice 2**

Round 603.101 to **2 decimal places**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Exam practice 3**

Round 99.909 to **the nearest whole number**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Approximation using rounding**

Sometimes, you may be asked to approximate an answer rather than give the exact answer. When this happens, you will need to round each number in the question before completing the calculation.

If you complete the calculation without rounding, you will not be awarded any marks.

Let’s look at an example.

Approximate 9.9 x 163.1 by rounding each number to the nearest whole number.

To successfully answer this question, we need complete these 3 steps in order:

1. Round 9.9 to the nearest whole number
2. Round 163.1 to the nearest whole number
3. Complete the calculation using the rounded numbers

Step 1: round 9.9 to the nearest whole number.

9.9 rounds up to 10

Step 2: round 163.1 to the nearest whole number.

163.1 rounds down to stay as 163

Step 3: complete the calculation using the rounded numbers.

10 x 163 = 1,630

Top tip: read the question carefully to check what digit you need to round to and whether there are negative numbers in the question.

**Question 7**

Approximate the following by rounding each digit to the nearest whole number.

6.99 x 7.5

(Show your working out.)

(1 mark)

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| --- |
|  |

**Question 8**

Approximate the following by rounding each digit to 1dp.

2.53 ÷ 10.001

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Exam practice 4**

Approximate -53.401 x 32.93 by rounding each number to the **nearest whole number**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Answers**

**Ordering and comparing decimals**

**Question 1**

2.98

3.45

7.12

8.67

**Question 2**

1.7

4.201

5.34

6.89

**Question 3**

9.5

4.56

3.7

1.293

**Exam practice 1**

7.819

6.54

5.7

2.364

**Rounding decimals**

**Question 4**

Complete the table below by rounding the figure 999.81365 to:

|  |  |
| --- | --- |
| **Place value** | **Answer** |
| the nearest whole number | 1000 |
| 1dp | 999.8 |
| 2dp | 999.81 |
| 3dp | 999.814 |

**Question 5**

Complete the table below by rounding the figure 231.4617 to:

|  |  |
| --- | --- |
| **Place value** | **Answer** |
| The nearest whole number | 231 |
| 1dp | 231.5 |
| 2dp | 231.46 |
| 3dp | 231.462 |

**Exam practice 2**

603.101 rounded to 2 decimal places = 603.1

603.10 would also be accepted.

**Exam practice 3**

99.909 rounded to the nearest whole number = 100

**Approximation using rounding**

**Question 6**

7 x 8 = 56

**Question 7**

2.5 ÷ 10.0 = 0.25

**Exam practice 4**

-53 x 33 = -1,749

**Your functional skills exam**

Your functional skills exams will consist of 2 papers.   
These papers will take place over the following time periods:

* Non-calculator paper – 40 minutes
* Calculator – 1 hour 50 minutes

Further information on the format that your test will take can be obtained from your training provider.

**Hints and tips**

* Find out what format your exam will be in. It may be paper-based   
  or on-screen.
* Plan what you are going to revise in advance. Don’t leave it until the last minute.
* Do as many past papers as you can so you are prepared for the day. If possible, try to complete the past papers following the same format as the actual exam.
* Find a quiet place to study and revise. It helps to sit at a table or a desk, don’t revise in bed.
* Don’t stay up all night revising the night before your exam. It’s important to have a good rest so you feel refreshed and ready to go.
* Read the question 3 times. The first time to ensure you understand what is being asked, the second time to get an understanding of what you need to do, and a third time to figure out exactly what maths techniques you should be applying.
* If you are struggling with a question, skip it and come back to it later. Try not to sit getting worked up about a difficult question, it will only waste exam time. Move on and come back to it after you have answered the other questions.
* Take note of the number of marks available. This will give you an indication of how much working out you must show. For example, 1 mark will need an answer only and more marks will need you to show your working out.
* When you’ve finished the exam, go back and check your answers. If you still have time remaining, use it to check your answers and when you have checked your answers check them again.