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**FUNCTIONAL SKILLS**

Maths Level 2



**Area: Numbers and the number system**

Criterion: Order, add, subtract and compare amounts or quantities using proper and improper fractions and mixed numbers

**Fractions**

Fractions show a part of something.

* They are split into 2: the top (called the numerator) and the bottom (called the denominator).

A close-up of a math problem

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Numerator

Denominator

* The denominator shows the total number of parts an amount or quantity is split into.
* The numerator shows how many of those parts are part of this calculation. It shows how many parts of the fraction you have.

A close-up of a math problem

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A fraction is a division.

To calculate a fraction of an amount or quantity, there are 2 steps.

* Divide by the denominator
* Multiply by the numerator

**Proper and improper fractions**

Proper fractions have a numerator that is **smaller** than the denominator.

Improper fractions have a numerator that is **greater** than the denominator.

**Question 1**

Which of the following is a **proper** fraction?

or or

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 2**

Select the **improper** fraction.

or or or

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 3**

Circle all the **proper** fractions.

(Show your working out.)

(3 marks)

|  |
| --- |
|  |

**Question 4**

Circle the **improper** fraction.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 5**

Identify the **improper** fractions.

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Question 6**

Identify the **proper** fraction.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Mixed numbers**

A mixed number is the combination of a whole number and a fraction.

Mixed numbers can be converted into improper fractions.

Improper fractions can be converted into mixed numbers.

Mixed numbers are **always** greater than 1.

**Converting between improper fractions and mixed numbers**

Improper fractions and mixed numbers can be converted.

To convert an improper fraction to a mixed number:

* divide the numerator by the denominator. This gives the integer (whole number).
* if there is a remainder or left over amount, this is the numerator of the fraction.

For example, write as a **mixed number**.

= 25 ÷ 4 = 6 remainder 1 (6 r1)

The 6 is the integer, while the 1 becomes the numerator of the fraction.

6 r1 =

To convert a mixed number to an improper fraction:

* multiply the integer (whole number) by the denominator
* add the original numerator to the improper fraction’s numerator

For example, write as an **improper fraction**.

The integer is 5 and the denominator is 3.

5 x 3 =

The numerator from the original mixed number is 2. Add this to the new improper fraction.

15 + 2 = 17

**Question 7**

Convert into a **mixed number**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 8**

Convert into a **mixed number**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 9**

Convert 3 into an **improper fraction**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 10**

Convert 13 into an **improper fraction**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Adding and subtracting fractions**

If the denominator of the fractions in the question are the same, simply add or subtract the numerators. For example,

Both fractions above have the same denominator. Therefore, the numerators can be subtracted.

However, in the question below, the denominators of each fraction are different.

To successfully add these fractions, they must have the same denominator. This is known as a **common denominator**.

To do this, multiply each fraction by the denominator of the other fraction.

The fractions now both have a denominator of 20, so the numerators can be added.

Remember that the denominator does not change when performing this final addition or subtraction.

**Question 11**

Calculate -

Give your answer as a **mixed number**.

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 12**

Calculate +

Give your answer as a **mixed number**.

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Question 13**

Calculate -

(Show your working out.)

(1 mark)

|  |
| --- |
|  |

**Question 14**

Calculate +

Give your answer as a **mixed number**.

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Exam practice 1**

Calculate + +

Give your answer as a **mixed number**.

(Show your working out.)

(5 marks)

|  |
| --- |
|  |

**Comparing fractions**

All fractions can be compared.

To order fractions, convert between mixed numbers and improper fractions and use equivalent fractions.

For example, identify the greatest fraction.

The fractions needs to be in the same form.

Converting to an improper fraction will make the fractions easier to compare.

The denominators remain different, so you will need to find equivalent fractions:

The fractions can now be compared. We can see that has a greater numerator when converted to

The greatest fraction is

**Question 15**

Which fraction is greater?

3 or

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Question 16**

Which fraction is smaller?

1 or

(Show your working out.)

(3 marks)

|  |
| --- |
|  |

**Finding fractions of amounts or quantities**

You might need to calculate a fraction of an amount or quantity.

In this instance, ‘of’ means multiply.

To find a fraction of an amount or quantity:

* divide the amount by the denominator
* multiply the answer by the numerator

For example, what is of 14,656?

1. Divide by the denominator

14,656 ÷ 32 = 458

1. Multiply by the numerator

458 x 1 = 458

**Question 17**

Calculate of 36

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Question 18**

Calculate of 280

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Question 19**

Calculate of 620

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Question 20**

Calculate of 102

(Show your working out.)

(2 marks)

|  |
| --- |
|  |

**Exam practice 2**

A bus is transporting 54 passengers.

of the passengers are men.

of the passengers are children.

How many of the passengers are women?

(Show your working out.)

(4 marks)

|  |
| --- |
| Women: \_\_\_\_\_\_\_\_\_\_\_\_ |

**Exam practice 3**

There are 20 balls in a bag.

20% are red.

are blue.

How many are green?

Give your answer as a fraction in its **simplest form**.

(Show your working out.)

(5 marks)

|  |
| --- |
|  |

**Answers**

**Proper and improper fractions**

**Question 1**:

**Question 2**:

**Question 3**:

**Question 4**:

**Question 5**:

**Question 6**:

**Mixed numbers**

**Question 7**: = 2

**Question 8**: = 9

**Question 9**: 3 =

**Question 10**: 13 =

**Adding and subtracting fractions**

**Question 11**:

**Question 12**: = 1

**Question 13**:

**Question 14**: = 1

**Exam practice 1**

+ +

x =

x =

can be converted into twentieths by multiplying by 10.

x =

+ + =

=1

**Adding and subtracting fractions**

**Question 15**

3 =

x =

is smaller than

Therefore, is greater.

**Question 16**

1 =

x =

x =

1 or is smaller.

**Finding fractions of amounts of quantities**

**Question 17**

36 ÷ 4 = 9

9 x 3 = 27

**Question 18**

280 ÷ 7 = 40

40 x 4 = 160

**Question 19**

620 ÷ 5 = 124

124 x 3 = 372

**Question 20**

102 ÷ 6 = 17

17 x 5 = 85

**Exam practice 2**

of 54 = 9.

of 54 = 18

9 + 18 = 27

54 – 27 = 27

**or**

54 – 18 – 9 = 27

27 passengers are women.

**Exam practice 3**

There are 20 balls in a bag.

20% of 20 = 4

of 20 = 6

10 are green =

÷ 10 =

**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.