Fractions

Study Development Worksheet

## Questions

### Simplifying fractions

1. Simplify .
2. Simplify .
3. Simplify .
4. Simplify .

### Adding and subtracting fractions

1. What is + ?
2. What is - ?
3. What is + ?

### Multiplying fractions

1. What is ?
2. What is ?
3. What is 4 ?

### Dividing fractions

1. What is ÷ ?
2. What is ÷ ?

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1. What is ÷ 2?

### Improper fractions

1. Write as a mixed number.
2. Write as a mixed number.
3. Write as a mixed number.
4. Write 4 as an improper fraction.
5. Write 6 as an improper fraction.
6. Write 3 as an improper fraction, with a denominator of 3.

### Comparing fraction size

1. Which of these fractions is larger: , or ?
2. Put these fractions in size order, beginning with the smallest: , , , , and .
3. Put these fractions in size order, beginning with the smallest: , , 1, , and .

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## Answers

### Simplifying fractions

1. 25 and 125 have a common factor of 25, so we divide the numerator and denominator by 25, to get = . There are no more common factors other than 1, so this is the simplified answer.
2. 14 and 21 have a common factor of 7, so we divide the numerator and denominator by 7, to get = . 2 and 3 have no common factors other than 1, so this is the simplified answer.
3. 5 and 19 have no common factors, so the fraction is already simplified.
4. 8 and 48 have a common factor of 8, so we divide the numerator and denominator by 8, to get . 1 and 6 have no common factors other than 1, so this is the simplified answer.

### Adding and subtracting fractions

1. + = = = .
2. can be simplified to give , so the question becomes: - = .
3. + = = = = .

### Multiplying fractions

1. = = .
2. = = .
3. 4 = = = = 2.

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### Dividing fractions

1. ÷ = = = = 1 .
2. ÷ = = = .
3. ÷ 2 = ÷ = = = .

### Improper fractions

1. = 2.. Therefore, we calculate: - = = .

So, we have that: = 2 .

1. = 3. This is a whole number, rather than a mixed number, but we cannot write the fraction as a mixed number, so we leave it as 3.
2. = 3.75. Therefore, we calculate - = = .

So, we have that = 3 .

1. 4 = = = .
2. 6 = = .
3. 3 = = .

### Comparing fraction size

1. We calculate = , and = .

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Therefore, we can see that is larger than .

1. The easiest way to do a question like this is to choose the fraction that you think will be in the middle, and then compare all the other fractions to that fraction.

In this question, we choose .

Comparing and :

We calculate = , and = .

Therefore, we can see that is larger than .

Comparing and :

We calculate = , and = .

Therefore, we can see that is larger than .

We repeat this calculation and find that is larger than , and that is larger than .

Now that we know that and are both larger than , we can compare these two fractions.

We calculate = , and = .

Therefore, we can see that is larger than .

We also know that and are smaller than , so we can compare these two fractions.

We calculate = , and = .

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Therefore, we can see that is larger than .

So, we now have our order, from smallest to largest:

, , , , .

1. Since and are improper fractions, we know that they are both larger than 1, so we compare their size:

We calculate = , and = . Therefore, we can see that is larger than .

Since and are both proper fractions, we know that they are less than 1, so we compare their size:

We calculate = , and = . Therefore, we can see that is larger than .

So, we have our order:

, , 1, , .

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