MATHEMATICS · GRADES 4-6

# Subtracting fractions with like denominators

### Difficulty level: Intermediate

### Mathematics: Grades 4-6

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## *Overview of the concept*

This is how you work out what is left of something, like the pizza left after everyone has taken a slice, when the pieces are already the same size. Because the pieces match, you only need to subtract how many pieces were taken from how many you started with. The size of each piece stays the same, so the answer is just a count of what remains. That is the simplest kind of fraction subtraction, and it comes up whenever you share food, fabric, or time in equal parts.



## *Rule*

**Subtracting fractions with like denominators: keep the denominator the same and subtract the numerators.**

The pieces are already the same size, so only the count changes.

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## Worked examples

EXAMPLE 1

**Q** Work out $\frac{4}{5} - \frac{1}{5}$.

SOLUTION

This is a like-denominators question, so start with the one rule to remember: when the denominators are the same, subtract the numerators and keep the denominator.

The numerators are 4 and 1, and 4 minus 1 is 3. The denominator stays 5.

So the answer is $\frac{3}{5}$.

EXAMPLE 2

**Q** A jug is $\frac{5}{6}$ full. Mia drinks $\frac{1}{6}$ of the jug. How much of the jug is left?

SOLUTION

This is a word problem about subtracting fractions, so write it as a sum: $\frac{5}{6}$ minus $\frac{1}{6}$.

The denominators are the same, so subtract the numerators.

Five minus 1 is 4, so the jug is $\frac{4}{6}$ full. Four and 6 share a divisor of 2, so simplify: $\frac{4}{6}$ is $\frac{2}{3}$.

So $\frac{2}{3}$ of the jug is left.

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## Practice questions

1 A cake has $\frac{9}{14}$ left. Tom eats $\frac{4}{14}$ of the cake. How much of the cake is left?

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2 A jug is $\frac{7}{8}$ full. Sam pours out $\frac{3}{8}$ of a jug. How full is the jug now? Give your answer in simplest form.

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3 Maya walks $\frac{5}{6}$ of the way along a trail, then turns back $\frac{1}{6}$ of the trail. How far along the trail is she now?

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4 A tank is $\frac{11}{12}$ full. After $\frac{5}{12}$ of a tank is used, how full is the tank? Give your answer in simplest form.

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5 A pizza has $\frac{3}{4}$ left. Tom eats $\frac{1}{4}$ of the pizza. How much of the pizza is left?

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6 A rope is $\frac{8}{9}$ m long. A piece $\frac{2}{9}$ m long is cut off. How much rope is left? Give your answer in simplest form.

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7 A bottle holds $\frac{7}{10}$ litre of juice. Sam drinks $\frac{3}{10}$ litre. How much juice is left? Give your answer in simplest form.

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8 A ribbon is $\frac{6}{7}$ m long. $\frac{2}{7}$ m is cut off. How much ribbon is left?

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9 A tank is $\frac{5}{8}$ full. First $\frac{1}{8}$ of a tank is used, then another $\frac{1}{8}$ of a tank is used. How full is the tank now?

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10 What number minus $\frac{3}{11}$ equals $\frac{4}{11}$?

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## ANSWER KEY

1. $\frac{5}{14}$

2. $\frac{1}{2}$

3. $\frac{2}{3}$

4. $\frac{1}{2}$

5. $\frac{1}{2}$

6. $\frac{2}{3}$

7. $\frac{2}{5}$

8. $\frac{4}{7}$

9. $\frac{3}{8}$

10. $\frac{7}{11}$

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