MATHEMATICS · GRADES 4-6

Simplifying fractions

Difficulty level: Intermediate

Mathematics: Grades 4-6

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Overview of the concept

This is how you write a fraction in its simplest form, like sharing a pizza equally so everyone can see at a glance how big each slice is. A fraction like 6 out of 12 means the same as 1 out of 2, but the second version is far easier to picture. Simplifying lets you compare two fractions quickly, because you are comparing them in the same plain form. You use it every time you cut a recipe down, split a bill, or check whether two shares are really equal.



Rule

Simplifying fractions: divide the top and bottom by the same number until they share no common factor but 1.

A fraction in simplest form has a top and bottom with no common factor but 1.

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Worked examples

EXAMPLE 1

Q Simplify $\frac{6}{8}$ to its lowest terms.

SOLUTION

This is a simplifying question, so start with the one rule to remember: divide the top and the bottom by the same number, the greatest common divisor, until nothing divides both of them.

The greatest common divisor of 6 and 8 is 2. Six divided by 2 is 3, and 8 divided by 2 is 4.

So $\frac{6}{8}$ in lowest terms is $\frac{3}{4}$. Three and 4 share no divisor bigger than 1, so it cannot go any further.

EXAMPLE 2

Q In a bag of 24 marbles, 16 are blue. What fraction of the marbles are blue, in simplest form?

SOLUTION

This is a word problem about fractions, so write the fraction first: 16 blue out of 24, which is $\frac{16}{24}$.

Now simplify. The greatest common divisor of 16 and 24 is 8. Sixteen divided by 8 is 2, and 24 divided by 8 is 3.

So $\frac{16}{24}$ in simplest form is $\frac{2}{3}$, and that is the fraction of the marbles that are blue.

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Practice questions

1. A pizza is cut into 18 slices and 12 are eaten. What fraction of the pizza is eaten, in lowest terms?

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2. Simplify $\frac{24}{36}$ to its lowest terms.

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3. Simplify $\frac{15}{10}$ to its lowest terms.

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4 Is $\frac{7}{11}$ in simplest form?

- **A** Yes
- **B** No

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5 Is $\frac{9}{15}$ in simplest form? If not, simplify it.

- **A** No, $\frac{3}{5}$
- **B** Yes
- **C** No, $\frac{5}{3}$
- **D** No, $\frac{9}{15}$

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6 Write a fraction equal to $\frac{3}{4}$ with denominator 12

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7 Tom says $\frac{10}{15}$ simplifies to $\frac{2}{5}$. Is Tom right? If not, what is it in lowest terms?

A. No, $\frac{2}{3}$

B. Yes

C. No, $\frac{5}{3}$

D. No, $\frac{10}{15}$

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8 Which of these is $\frac{20}{25}$ in lowest terms?

- **A** $\frac{4}{5}$
- **B** $\frac{5}{4}$
- **C** $\frac{2}{5}$
- **D** $\frac{4}{25}$

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9 Write 0.5 as a fraction in lowest terms.

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10 A rope is 12 m long. Tom's rope is 16 m long. How many times as long as the first rope is Tom's rope? Give your answer as a fraction in lowest terms.

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ANSWER KEY

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

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

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

4. Yes

5. No, $\frac{3}{5}$

6. $\frac{9}{12}$

7. No, $\frac{2}{3}$

8. $\frac{4}{5}$

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

10. $\frac{4}{3}$

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