

Finding Equivalent Fractions and Simplifying Fractions

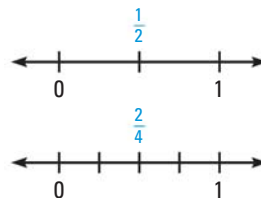


A **fraction** is a number of the form $\frac{a}{b}$ where a is the **numerator** and b is the **denominator**. The value of b cannot be 0.

The number lines show the graphs of two fractions, $\frac{1}{2}$ and $\frac{2}{4}$.

These fractions represent the same number. Two fractions that represent the same number are called **equivalent fractions**.

To write equivalent fractions, you can multiply or divide the numerator and the denominator by the same nonzero number.



EXAMPLE

Write two fractions that are equivalent to $\frac{6}{8}$.

Multiply the numerator and denominator by 3.

$$\frac{6}{8} = \frac{6 \times 3}{8 \times 3} = \frac{18}{24}$$

Equivalent fraction

Divide the numerator and denominator by 2.

$$\frac{6}{8} = \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$$

Equivalent fraction

A fraction is in **simplest form** when its numerator and its denominator have no common factors besides 1.

EXAMPLE

Write the fraction $\frac{10}{15}$ in simplest form.

Divide the numerator and denominator by 5, the greatest common factor of 10 and 15.

$$\frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \frac{2}{3}$$

Simplest form

PRACTICE

Write two fractions that are equivalent to the given fraction.

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

2. $\frac{4}{6}$

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

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

5. $\frac{10}{14}$

Write the fraction in simplest form.

6. $\frac{16}{24}$

7. $\frac{3}{12}$

8. $\frac{30}{48}$

9. $\frac{5}{40}$

10. $\frac{8}{20}$

11. $\frac{4}{16}$

12. $\frac{64}{72}$

13. $\frac{35}{100}$

14. $\frac{21}{81}$

15. $\frac{44}{55}$

16. $\frac{15}{20}$

17. $\frac{12}{28}$

18. $\frac{15}{39}$

19. $\frac{24}{78}$

20. $\frac{60}{96}$