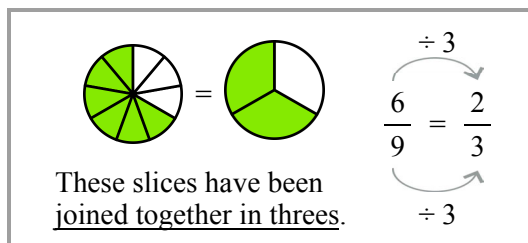
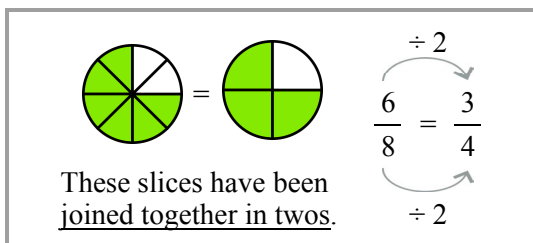


# Simplifying Fractions Using Factoring

Do you remember **how to simplify fractions**?



In **simplifying**, we divide both the numerator and the denominator by the same number. The fraction becomes *simpler*, which means that the numerator and the denominator are now *smaller* numbers than they were before. However, this does NOT change the actual value of the fraction. It is the “same amount of pie” as it was before. It is just cut differently.

We can simplify a fraction only if its numerator and denominator are divisible by the same number:

We *can* simplify  $\frac{25}{65}$  because both 25 and 65 are divisible by 5:  $\rightarrow$

We *cannot* simplify  $\frac{11}{20}$  because 11 and 20 do not have any common divisors except 1.

$$\frac{25}{65} = \frac{5}{13}$$

Dividing both numerator and denominator by 5.

You can simplify in multiple steps. Just start somewhere, using the divisibility tests. The goal is to simplify the fraction to the *lowest terms*. That is when the numerator and the denominator don't have any common factors.

$$\frac{42}{60} = \frac{21}{30} = \frac{7}{10}$$

Dividing by 2, then by 3, then by 2.

$$\frac{180}{780} = \frac{18}{78} = \frac{9}{39} = \frac{3}{13}$$

Dividing by 10, then by 2, then by 3, then by 2.

1. Simplify the fractions to the lowest terms, if possible.

a. $\frac{12}{36}$	b. $\frac{45}{55}$	c. $\frac{15}{23}$	d. $\frac{13}{6}$
e. $\frac{15}{21}$	f. $\frac{19}{15}$	g. $\frac{17}{24}$	h. $\frac{24}{30}$

2. Simplify the fractions. Use your knowledge of divisibility.

a. $\frac{95}{100}$	b. $\frac{66}{82}$	c. $\frac{69}{99}$
d. $\frac{120}{600}$	e. $\frac{38}{52}$	f. $\frac{72}{84}$