Introducing:

- lower terms
- lowest terms
- common factor
- greatest common factor

\[
\frac{21}{24} \quad \text{TO} \quad \frac{7}{8}
\]
These fractions are the same size. The fraction on the right is in lower terms because both the numerator and denominator are smaller than the numerator and denominator of the fraction on the left.
Notice that both the numerator and denominator in the fraction $\frac{21}{24}$ are divided by 3. This example shows that you are dividing the fraction $\frac{21}{24}$ by $\frac{3}{3}$, a form of 1.
This picture shows that 8 and 16 are both divided by 2. A number that divides evenly into other numbers is called a *common factor* of the numbers. Two(2) is a *common factor* of 8 and 16.
The numerator and denominator of $\frac{8}{16}$ can also be divided by 8. Eight is the largest number that divides evenly into 8 and 16. 2, 4, and 8 are common factors of 8 and 16, but 8 is the greatest common factor of 8 and 16.
Dividing the numerator and denominator by the greatest common factor will rename the fraction in lowest terms. The fraction \( \frac{1}{2} \) is in lowest terms because no whole number larger than 1 will divide evenly into 1 and 2.

Some texts call renaming in lowest terms “reducing” the fraction. But this is misleading. As you can see, the fraction \( \frac{8}{16} \) is not reduced.
This picture shows the fraction $\frac{18}{30}$. The greatest common factor of 18 and 30 is 6. Divide both 18 and 30 by the greatest common factor 6 will rename $\frac{18}{30}$ in lowest terms.
What is \( \frac{24}{30} \) in lowest terms? Think of the largest number that will divide evenly into both 24 and 30. Then divide both the numerator and denominator by that number.
Rename to Lower Terms 8

A common factor of 24 and 30 is 6. Dividing both numerator and denominator by 6 is the same as dividing by 1.

\[
\frac{24}{30} \div \frac{6}{6} = \frac{4}{5}
\]
What is $\frac{40}{48}$ in lowest terms? Think of the largest number that will divide evenly into both 40 and 48. Then divide both numerator and denominator by that number.
Rename to Lower Terms 10

A common factor of 40 and 48 is 8.
Dividing both numerator and denominator by 8 is the same as dividing by 1.

\[
\frac{40}{48} = \frac{5}{6}
\]