What if you have two fractions and you want to know which is greater—how can you tell?

Comparing fractions can be tricky, but not always. There are times when comparing fractions is really very simple.
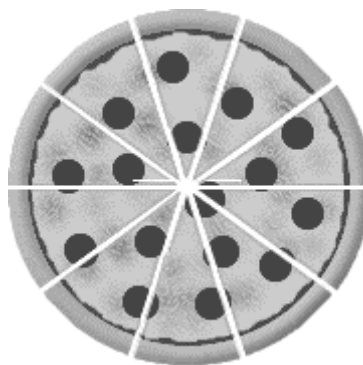
It is easy to tell which of two fractions is greater if the fractions have the same numerator _or_ if the fractions have the same denominator. Let's see why.

Let's take two unit fractions, 1/4 and 1/10. Both have 1 as the numerator.

Now, look at these two pizzas. They are the same size. One is cut into 4 pieces and the other is cut into 10 pieces.
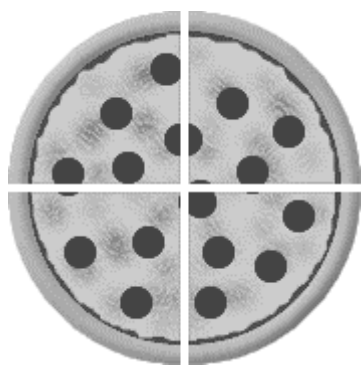
4 pieces   **10 pieces**

One piece of the pizza on the left is **1/4** of a whole pizza, and one piece of the pizza on the right is **1/10** of a whole pizza. Which is larger—one piece of the pizza cut into 4 pieces or one piece of the pizza cut into 10 pizza? Of course, the piece from the pizza cut into just 4 pieces is larger.
So, **1/4 > 1/10**.

What if we compare **2** pieces of the pizza on the left to **2** pieces of the pizza on the right? The 2 pieces on the left are still larger than the 2 on the right. Why? Because each of the two pieces on the left is larger than either of the two pieces on the right. So, **2/4 > 2/10**. (Note: The numerators are the same.)

If two underline positive (greater than 0) fractions have the same numerator, the one with the smaller denominator will always be greater.

Why? Because the denominator tells how many equal pieces the whole is divided into. The fewer pieces, the greater each piece will be.

Now, let's look at two fractions with the *same* denominator.

Which is greater **3/8** or **7/8**?

The denominators are both the same, so we'll cut a pizza into **8** equal pieces. (**Remember: The denominator tells how many pieces the whole is divided into. The numerator tells how many of those pieces we're talking about.**)

Now, which is greater—3 of those pieces (**3/8** of the pizza) or 7 of those pieces (**7/8** of the pizza)?

That's easy. The pieces are all the same size, so 7 pieces is more than 3 pieces.

So, **7/8 > 3/8**.
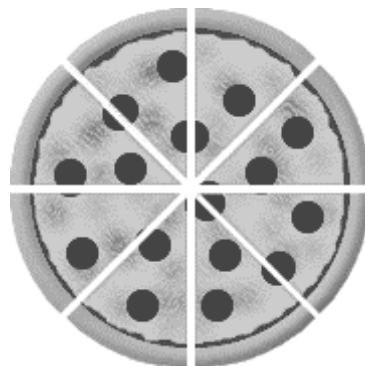
Does it matter into how many pieces we cut the pizza? No. As long as the pieces are equal, the more pieces you have, the greater amount of the pizza you have.

If two (positive) fractions have the same denominator, the one with the greater numerator will always be greater.

Why? Because if the denominators are the same, the size of the pieces is the same. So, the more pieces you have, the greater fraction of the whole you have.

Fractions equal to 1:

It is very easy to compare fractions if each fraction is equal to one.

> *Remember*: Any fraction with the same numerator and denominator is equal to 1.

1/1, 2/2, 3/3, 4/4 . . . are all equal to 1. This means that they are also all equal to each other.

1 = 1/1 = 2/2 = 3/3 = 4/4 = . . .   Why? Because in our number system, if two quantities are each equal to the same thing, then they are equal to each other. This is called the **Transitive Property of Equality**.