

---

This tutorial covers Venn diagrams.

Venn diagrams are a way of representing the relationships between different sets. It's a way of organizing our information. You might be familiar with them from other classes, like English class, where we can compare different characters or books.

With a Venn diagram, we have two or more circles, and the circles overlap. And this overlap in part shows the stuff that is common to both sets.

In this example, it says a school has 300 students. 140 are in band. 32 are in band and chorus, and 5 are in neither. So how many students are just in chorus?

So first, when we're setting up the Venn diagram, you need to label what the circles represent. So here, we'll have a circle for band, and here we'll have a circle for chorus, because those are our two options.

So now we need to start filling in the information that we have. First, we know that our total is 300 students. There is nowhere really to write that total in this diagram. It's just good to keep in mind. We'll need that fact for later.

And then we know 140 students are in band. We don't know whether or not they're in band alone or band and chorus, so we can't write that in just yet. We know 32 students are in band and chorus, so I'm going to put that 32 in the overlap part because, that's showing us that there's 32 students who take band as well as chorus, both things.

5 students are in neither. So we have 5 students who are not inside this set at all, and who are outside of our set. Sometimes you'll see this with a box kind of drawn all the way around our world. So you might have that. You might not. It kind of depends.

Now we can go back here. So if you have 140 students are in band and 32 of them are also in chorus, we can find out how many are just in band by doing 140 minus 32. When we do that, we get 108. So 108 students only take band.

Now we want to know how many students go here, how many students are just in chorus. So if I know I have 300 total, then I can subtract the 5 that are nothing, the 108 that are only in band, and the 32 who are in both, to get left with right here, how many people are just in chorus, the 155.

Now, if you want to check that you've done this accurately, you would add up all of your different locations. You'd do 5 plus 108 plus 32 plus 155, and you should get the 300 students that are totally in the school.

Now, we can also have Venn diagrams with more than two circles. You can use three or even more. When you get above three, it starts to get a little confusing. But again, the same principles apply.

Here in the center, we have the data points, or the things, or the people that fit into all three categories, whatever way they are. Here are just the people that are in both the red and the black circles. Here are just the stuff that's in the red and the blue circle. Here is the stuff that falls into the blue and the black circle. And then out here is the stuff that's just the blue, just the red, and just the black.

So if we were thinking about say, students, freshman in college who are taking physics, freshmen who are taking chemistry, and freshmen who are taking statistics, there would be some who take all three, some who take just physics and chemistry, some physics and statistics, some statistics and chem, some just stats, some just chem, and some just physics.

So you can use the three circle Venn diagram to organize information in the same way that you would do with the two. And again, if someone is not taking any of those courses, they would be on the outside around here.

So this has been your tutorial on Venn diagrams. It's one way of many to organize information.