

Transcript

Live Video – Rules Part 1

01. 00:00 / 00:05 - So here are the rules, part 1. All we are going to do is go back through the few questions
02. 00:05 / 00:09 - that we've done that would use rules and say, well here's how we could have done them with
03. 00:09 / 00:16 - the rules but notice again we really didn't need to. The rules in properties can be important
04. 00:16 / 00:21 - and useful in probability. They're definitely important when you study probability. In terms
05. 00:21 / 00:26 - of statistics, they are sometimes important. Again our goal is really to just introduce
06. 00:26 / 00:32 - you to the concepts, without getting too detailed. This is actually a question we didn't answer,
07. 00:32 / 00:37 - but let's answer it here anyway. What is the probability that the individual does not have
08. 00:37 / 00:44 - calcium oxalate crystals present? Well, before we know the probability that you do is 31
09. 00:44 / 00:50 - out of 73. So how can I find a probability that you don't. So what if the probability
10. 00:50 / 00:57 - of A was 0.425? Then: one minus 0.425, which gives me 0.575. Clearly in this Case, it's
11. 01:01 / 01:08 - just as easy to say 42 out of 73. Right? But there are times when the point is it's much
12. 01:08 / 01:13 - easier to find one of the two probabilities than the other, and I can get from one to
13. 01:13 / 01:19 - the other very easily. Here's our union example, there's not a formula yet for "and", we'll
14. 01:19 / 01:23 - come back to it later it's a higher level formula. But there is a formula is pretty
15. 01:23 / 01:28 - easy for "or". It is called the additional rule. And in the notes that you're seeing
16. 01:28 / 01:34 - online this is the general addition rule. So the disjoint rule is just add the probabilities
17. 01:34 / 01:39 - together, it's an orange or it's an apple or it's a banana, you know, I just add them
18. 01:39 / 01:43 - together and I don't have to worry about the overlap because there is no overlap. You can't
19. 01:43 / 01:49 - have both in some scenarios. So we saw that here when we looked at just the probability
20. 01:49 / 01:54 - of 5 or more because we really just added these two numbers together. That's the same
21. 01:54 / 02:01 - thing is adding those two probabilities together. But this again is the general addition rule.
22. 02:01 / 02:08 - Just remember what our answer was before. Before we got the probably A or B is 0.507.
23. 02:09 / 02:14 - And now we're going to use this formula, the probability an A or B equals the probability
24. 02:14 / 02:21 - of A plus the probability of B minus the probability of their Intersection. And what we're doing
25. 02:21 / 02:26 - is subtracting off those that we would have counted twice. So it's just a matter for this
26. 02:26 / 02:31 - one which one you like better would you rather do it logically, or would you rather use the
27. 02:31 / 02:38 - formula. So all I did was pull in the answers that we got before, probability of A was 0.425,
28. 02:39 / 02:46 - probability of B was 0.329, probability of A and B was 0.247. I plug them in, very very
29. 02:46 / 02:52 - exciting, I get the same answer that we got by counting. So I just want you to see that,
30. 02:52 / 02:58 - the formula is not rocket science in theory land. But they're designed to just, if I only
31. 02:58 / 03:04 - had those three pieces, I can still find the answer. If I don't have the whole table, I
32. 03:04 / 03:11 - can use these formulas to get where I want to go. So that's the general addition rule.
33. 03:11 / 03:15 - So those are really easy probabilities so far. I'd say the biggest problem is misreading.
34. 03:15 / 03:19 - If you've messed it up, it's probably that you need to read more carefully, be a little
35. 03:19 / 03:24 - bit more cautious. And if you're using a rule you should probably step back and ask yourself,
36. 03:24 / 03:28 - well what if I didn't use the rule? Could I figure it out by just counting?