

## Lowest Common Denominator

In this video, we will look at how to find the lowest common denominator. The first step to finding the lowest common denominator of two or more fractions is to find the least common multiple, or LCM, of the denominators. The least common multiple becomes the lowest common denominator, or LCD, in the new equivalent fractions. Let's take a look at a few examples.  $\frac{2}{4}$  and  $\frac{1}{5}$ . The denominators of these fractions are different: we call this *unlike denominators*. To find common denominators, we find the least common multiple, of 4 and 5. We set up a table. And now we list the multiples of 4 and 5. A general rule is to list 5 multiples at a time. The multiples of 4 are 4, 8, 12, 16, 20. The multiples of 5 are 5, 10, 15, 20, 25. Now we look at the lists and determine which multiples they share. The only multiple they share is 20, so the least common multiple is 20. This means that 20 will become the lowest common denominator when we find equivalent fractions of  $\frac{2}{4}$  and  $\frac{1}{5}$ .  $\frac{1}{3}$  and  $\frac{3}{7}$ . Our next set of fractions is  $\frac{1}{3}$  and  $\frac{3}{7}$ . To find the lowest common denominator, we first find the least common multiple of 3 and 7. We set up our table and we list the multiples of 3 and 7. The multiples of 3 are 3, 6, 9, 12, and 15. The multiples of 7 are 7, 14, 21, 28, and 35. We need to keep going because we do not have a common multiple yet. 15, 18, 21. I notice that 21 is also a multiple of 7. The least common multiple of 3 and 7 is 21. This means 21 will be the lowest common denominator for  $\frac{1}{3}$  and  $\frac{3}{7}$ .  $\frac{4}{9}$  and  $\frac{8}{12}$ . Our last set of fractions is  $\frac{4}{9}$  and  $\frac{8}{12}$ . To find the lowest common denominator of  $\frac{4}{9}$  and  $\frac{8}{12}$ , we find the least common multiple of 9 and 12. We set up our table and list our multiples. The multiples of 9 are 9, 18, 27, 36, 45. The multiples of 12 are 12, 24, 36, 48, 60. The least common multiple that they share is 36. The least common multiple of 12 and 9 is 36. This means that 36 will be the lowest common denominator  $\frac{4}{9}$  and  $\frac{8}{12}$ .

---