

00:00:07.620 --> 00:00:09.930
Alright, so this video is on

00:00:09.930 --> 00:00:11.085
reducing rational expressions

00:00:11.085 --> 00:00:12.839
and rational expressions.

00:00:12.840 --> 00:00:15.240
They're like they're like fractions except

00:00:15.240 --> 00:00:18.499
the top and the bottom are polynomials,

00:00:18.500 --> 00:00:20.036
and we reduce them.

00:00:20.036 --> 00:00:21.956
We simplify them just like

00:00:21.956 --> 00:00:24.149
we we simplify fractions.

00:00:24.150 --> 00:00:26.330
So with fractions, for example,

00:00:26.330 --> 00:00:31.560
if we have something like 4.6 .

00:00:31.560 --> 00:00:33.270
The way that we simplify that

00:00:33.270 --> 00:00:35.347
we reduce that is we factor the

00:00:35.347 --> 00:00:37.087
top and we factor the bottom.

00:00:41.760 --> 00:00:43.576
And we can cancel any factors that are

00:00:43.576 --> 00:00:45.696
common to both the top and the bottom right?

00:00:45.700 --> 00:00:47.900
So this would just become.

00:00:47.900 --> 00:00:51.078
 $\frac{2}{3}$ and it is the same process

00:00:51.078 --> 00:00:53.430
with reducing things like this.

00:00:53.430 --> 00:00:55.140
We just need to factor the

00:00:55.140 --> 00:00:56.790
top and factor the bottom.

00:00:56.790 --> 00:00:58.320
So I'm going to write

00:00:58.320 --> 00:00:59.544
down the factored forms.

00:00:59.550 --> 00:01:01.075
You should pause the video

00:01:01.075 --> 00:01:02.295
and try for yourself.

00:01:02.300 --> 00:01:04.840
Factoring those two things.

00:01:04.840 --> 00:01:06.325
So I'm assuming now you've

00:01:06.325 --> 00:01:08.280
factored the top and the bottom.

00:01:08.280 --> 00:01:10.219
And on top we can factor using

00:01:10.219 --> 00:01:11.357
greatest common factor and

00:01:11.357 --> 00:01:12.839
it's going to look like this.

00:01:16.640 --> 00:01:19.802
And on the bottom this is

00:01:19.802 --> 00:01:21.910
factored by grouping so.

00:01:21.910 --> 00:01:23.278
You should get something like this.

00:01:27.810 --> 00:01:30.490
OK and right. At the top and the

00:01:30.490 --> 00:01:32.458
bottom have a common factor.

00:01:32.460 --> 00:01:34.260
That common factor is $X + 1$ and

00:01:34.260 --> 00:01:36.254
we can just drop that the top

00:01:36.254 --> 00:01:37.734
one cancels the bottom one.

00:01:37.740 --> 00:01:42.160
So what we get here is. X .

00:01:42.160 --> 00:01:44.640
Over $X^2 - 1$ and we're done.

00:01:44.640 --> 00:01:46.190
We could factor this actually,

00:01:46.190 --> 00:01:48.794
but we'll see that there's no common

00:01:48.794 --> 00:01:51.676
factor between the top right and the bottom.

00:01:51.680 --> 00:01:53.624
And we need to be kind of careful

00:01:53.624 --> 00:01:55.095
because here it can be tempting

00:01:55.095 --> 00:01:56.760
to sort of keep going and say,

00:01:56.760 --> 00:01:57.970
oh, I could factor right?

00:01:57.970 --> 00:02:00.390
I could cancel an X here and an X here,

00:02:00.390 --> 00:02:01.600
but I can't do that.

00:02:01.600 --> 00:02:02.810
I really need to factor.

00:02:02.810 --> 00:02:04.256
In fact, let's let's factor this.

00:02:04.260 --> 00:02:06.268
So if I factor.

00:02:06.270 --> 00:02:06.909
Here we're done.

00:02:10.750 --> 00:02:13.310
But if I continue on.

00:02:13.310 --> 00:02:15.950
In fact are, which is fine.

00:02:15.950 --> 00:02:17.880
That on the bottom is

00:02:17.880 --> 00:02:19.424
difference of two squares.

00:02:19.430 --> 00:02:20.815
And so the factors and

00:02:20.815 --> 00:02:22.200
the top are X factors.

00:02:22.200 --> 00:02:24.970
In the bottom are $X + 1$ X minus one.

00:02:24.970 --> 00:02:26.360
There are no common factors,

00:02:26.360 --> 00:02:27.464
so you just can't

00:02:27.464 --> 00:02:28.568
simplify that any further.

00:02:30.930 --> 00:02:31.410
And that's it.

00:02:33.700 --> 00:02:33.900
OK.