

## 12.2: t Distribution Demo

### Learning Objectives

- State how the degrees of freedom affect the difference between the  $t$  and normal distributions

### Instructions

This demonstration allows you to compare the  $t$  distribution to the standard normal distribution. At the start, the standard normal distribution is compared to a  $t$  distribution with three degrees of freedom. You can change the degrees of freedom of the  $t$  distribution with the slider. The 3 and the 50 mark the ends of the slider. The "current" degrees of freedom are shown at the bottom where it says " $t$  distribution with  $df = 3$ ." As you change the slider, the  $df$  are shown by this last line. The "zoom in" button allows you to change the scale of the graph to see the tails of the distribution in more detail.

### Illustrated Instructions

#### Video Demo

In the video the slider is used to increase the degrees of freedom. Notice how the  $t$ -distribution change as the degrees of freedom increase. The video concludes with the tails of the tails of the graphs being zoomed into via the "zoom in" button and the degrees of freedom being decreased.

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