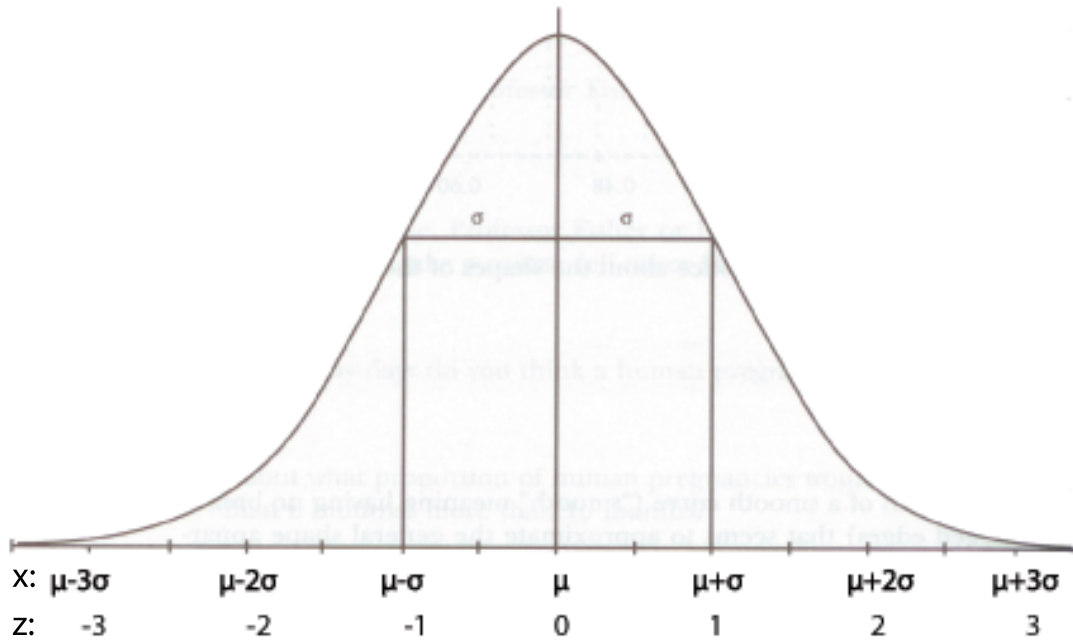


Every normal curve extends from $-\infty$ to ∞ on the horizontal axis with the area under the curve always equal to one.

Consider the normal curve below with mean μ and standard deviation σ , or, in the case of the standard normal curve with mean 0 and standard deviation 1. Moving from the peak to the right, every normal curve curve changes from concave down to concave up exactly 1 standard deviation from the mean.



From the above, we can also see that every normal curve with mean μ and standard deviation σ and variable x can be transformed into a standard normal curve with variable z by the formula

$$z = \frac{x - \mu}{\sigma}.$$

Similarly, every standard normal curve with variable z can be transformed into a normal curve with mean μ and standard deviation σ with variable x by the formula

$$x = \mu + \sigma z.$$