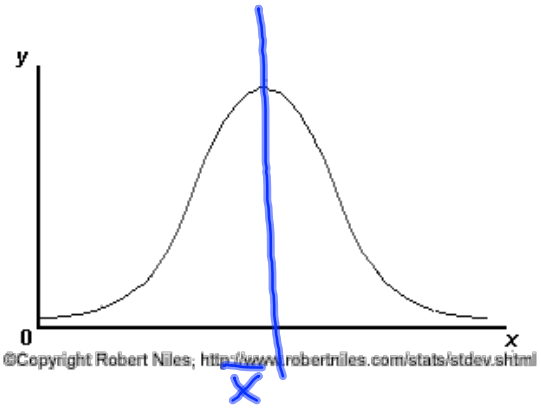
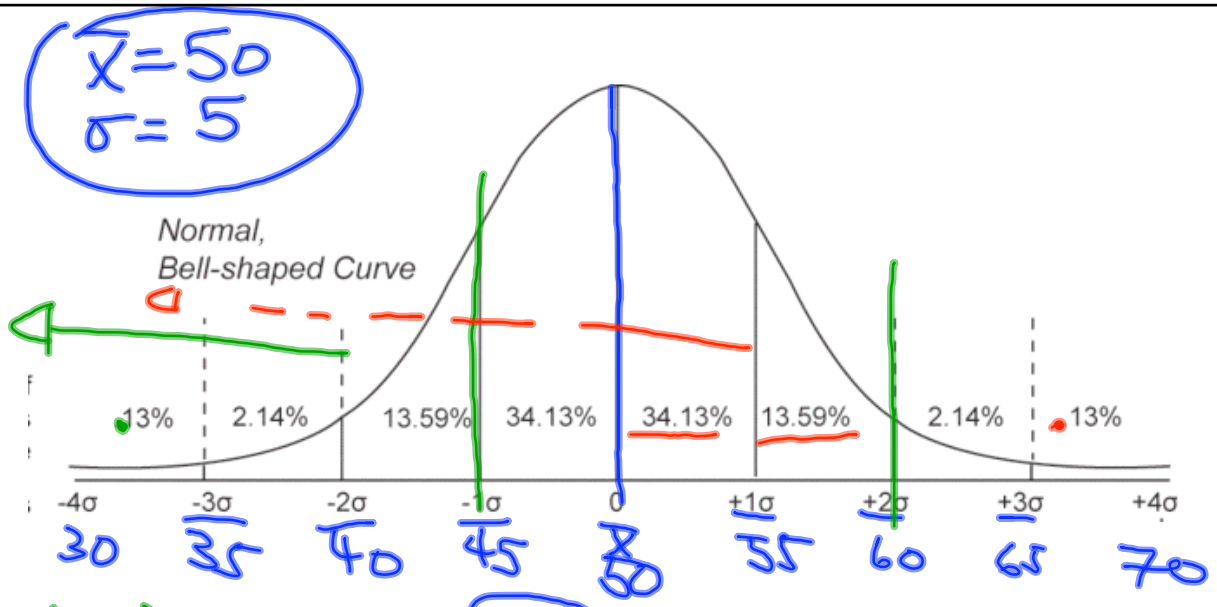
Normal Distribution Curve (Bell Curve)



100%

1. The total area under the curve is 1 unit
2. The normal curve extends indefinitely in both directions
3. The normal curve is symmetric
4. All of the data is represented by the area under the curve.
5. The mean, median and mode lie in the centre of the data
6. 50% of your data lies to the left of the mean and 50% of the data lies to the right of the mean.



1. 68.26 % of the data are within one standard deviation of the mean
2. 81.85 % of the data lie between μ - 1σ and μ + 2σ
3. 2.27 % of the data lies below μ - 2σ
4. 50 % of the data lies above μ
5. 13.59 % of the data lie between μ + 1σ and μ + 2σ
6. 84.13 % of the data lie below μ + 1σ

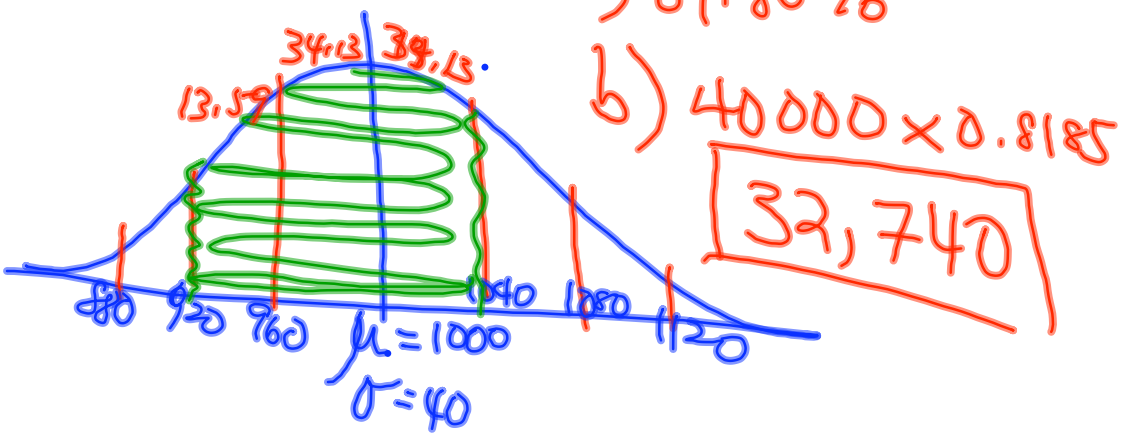
A light bulb manufacturer produced forty thousand 100W light bulbs for a retail store. From past data, he knows the life of the bulbs is normally distributed with a mean life of 1000 hours and a standard deviation of 40 hours.

a) What % of his light bulbs lasted between 920 and 1040 hours? How many bulbs will last that long?

a) 81.85%

b) 40000 × 0.8185

32,740



b) How many light bulbs last between 1040 and 1080 hours?

0.1359 × 40000 = 5436

c) What % of light bulbs lasted less than 920 hours? How many bulbs will that be?

a) 2.27%

b) 40000 × 0.0227

908