# Simulations

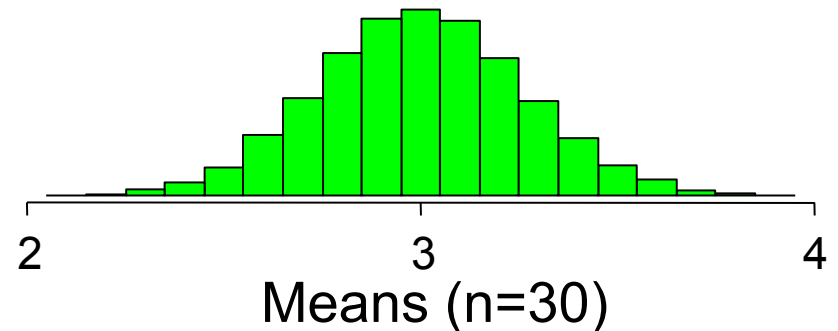To illustrate the general behavior of samples of fixed size n, 10000 samples each of size 30, 60 and 120 were generated from this uniform distribution and the means calculated. Probability histograms were created for each of these (simulated) sampling distributions.

Notice all three of these look to be essentially normally distributed. Further, note that the variability decreases as



Means (n=30)

Means (n=60)

Means (n=120)
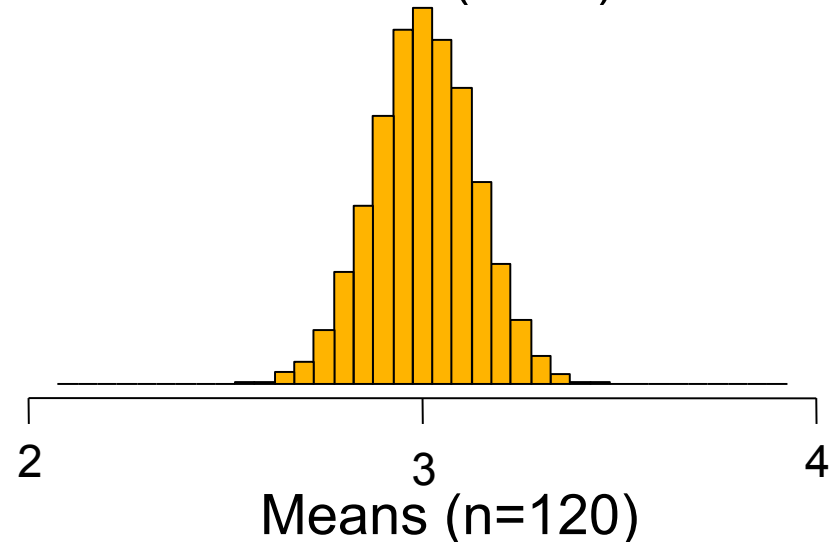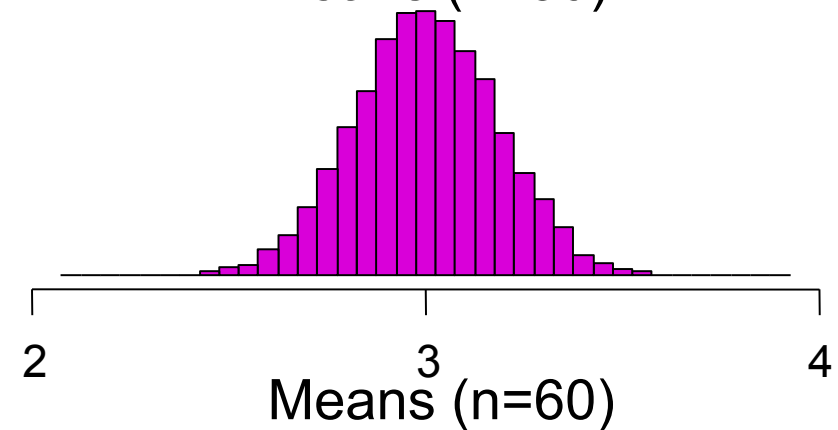
To further illustrate the general behavior of samples of fixed size n, 10000 samples each of size 4, 16 and 32 were generated from the positively skewed distribution pictured below.

Skewed distribution

n=4

n=16

n=32
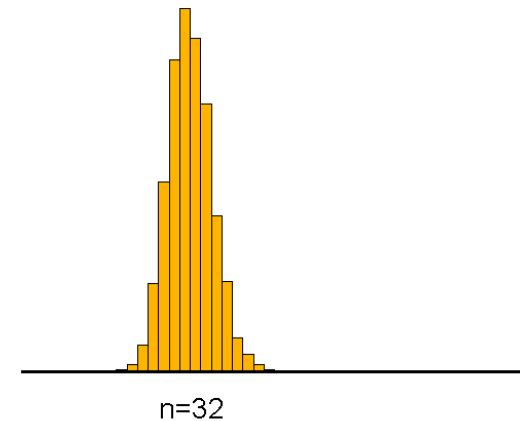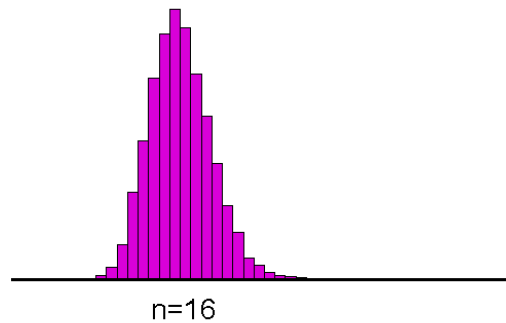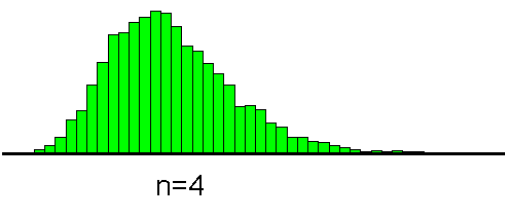
Notice that these sampling distributions all all skewed, but as n increased the sampling distributions became more symmetric and eventually appeared to be almost normally distributed.

# Illustrations of Sampling Distributions
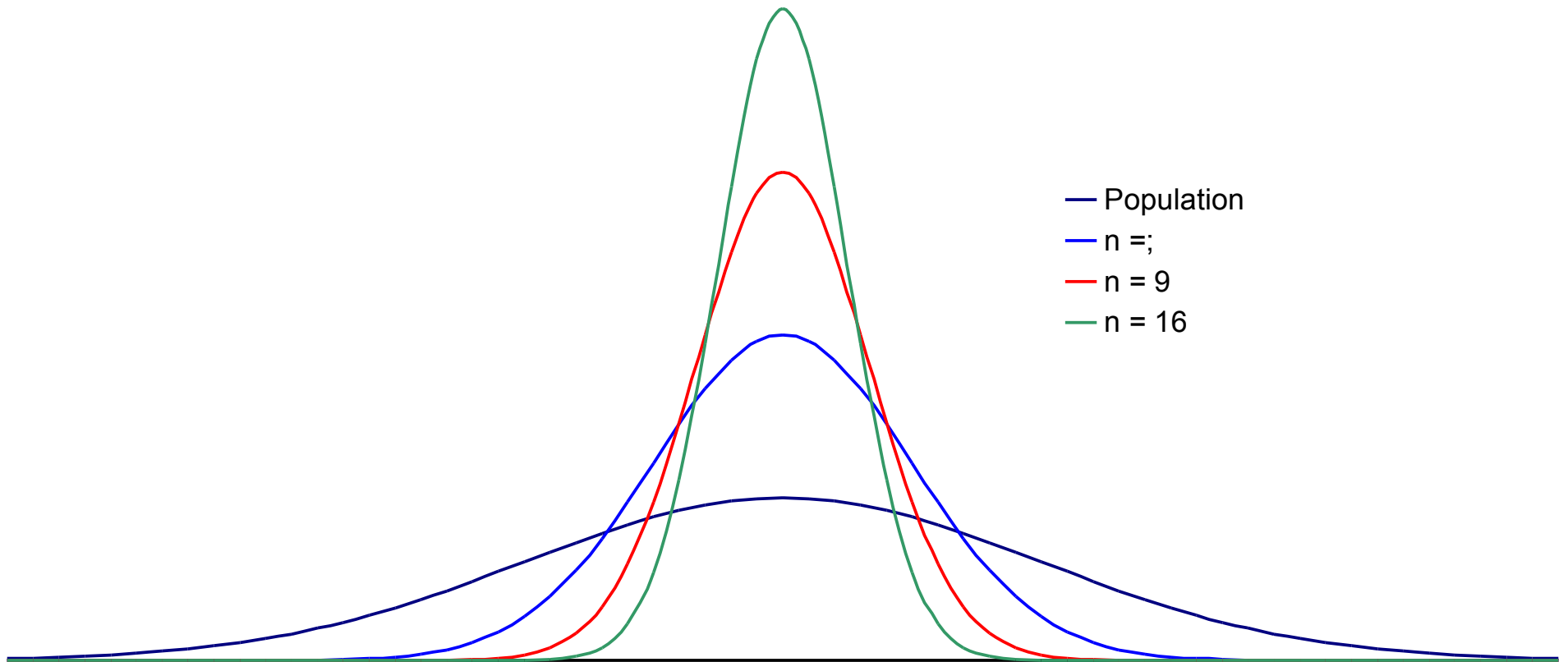
| | Population |
|---|---|
| | n =; |
| | n = 9 |
| | n = 16 |

Symmetric normal like population

# Illustrations of Sampling Distributions

Population
n=4
n=10
n=30

Skewed Population