g) $\mu_{\bar{x}} \approx$ 9.951 $\sigma_{\bar{x}} \approx$ 6.255578 when $n=16$ and $\lambda=0.1$

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Introduction to Statistics

Results of Project 4 **NAME:** Jeremy Stark

h) Repeat a)-g) above for $n=32,\ 64,\ 128$, and $\lambda=0.05,\ 0.1,\ 0.2,\ 0.5,\ 1,$ and summarize the result in the table below.

Sampling Distribution of $\bar{x}_n$ when sampling from the Exponential Distribution $Exp(\lambda)$

$\lambda=$	$\mu=$	$\sigma=$	$n=$	$\mu_{\bar{x}}=$	$\sigma_{\bar{x}}=$
0.05	20	20	32	19.79432	3.472136
			64	20.16791	2.481169
			128	19.97461	1.733489
0.1	10	10	32	10.0282	1.737552
			64	10.03161	1.268634
			128	10.0133	0.9160128
0.5	2	2	32	1.99981	0.363771
			64	1.985944	0.245357
			128	1.99346	0.1717648
1	1	1	32	0.9969126	0.173031
			64	0.9975464	0.1242684
			128	1.002881	0.0925792

B. Repeat all the steps in 1) above, but now simulate the sampling distribution of the statistic $\bar{x}_n$ when sampling from the *Normal Distribution* $N(\mu,\sigma^2)$. You need only to replace `rexp(n, rate=??)` with `rnorm(n, mean=??, sd=?? )` in step b) above.

Sampling Distribution of $\bar{x}_n$ when sampling from the Normal Distribution $N(\mu,\sigma^2)$

$\mu=$	$\sigma=$	$n=$	$\mu_{\bar{x}}=$	$\sigma_{\bar{x}}=$
10	1	16	10.00356	0.2538686
		25	10.00576	0.2012551
		36	9.999759	0.1658586
10	3	16	9.943551	2.365313
		25	10.06328	1.801579
		36	10.00814	1.475187
20	1	16	20.01679	0.2469165
		25	19.99982	0.2001644
		36	19.99854	0.1632168
20	3	16	19.90346	2.211655
		25	19.99872	1.795335
		36	19.94354	1.546872