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Quiz 2



8/8 points earned (100%)

Quiz passed!

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1/1 points

What is the variance of the distribution of the average an IID draw of nobservations from a population with mean μ and variance σ^2 .



Correct Response

$$Var(\bar{X}) = \sigma^2/n$$

- $\bigcirc \quad \sigma/n \\
 \bigcirc \quad 2\sigma/\sqrt{n}$



1/1 points

2.

Suppose that diastolic blood pressures (DBPs) for men aged 35-44 are normally distributed with a mean of 80 (mm Hg) and a standard deviation of 10. About what is the probability that a random 35-44 year old has a DBP less than 70?

- 32%
- O 8%
- **O** 22%
- **O** 16%

Correct Response

```
pnorm(70, mean = 80, sd = 10)
```

[1] **0.**1587



1/1 points

3.

Brain volume for adult women is normally distributed with a mean of about 1,100 cc for women with a standard deviation of 75 cc. What brain volume represents the 95th percentile?



approximately 1223

Correct Response

qnorm(0.95, mean = 1100, sd = 75)

[1] 1223

0	approximately 1175	
0	approximately 1247	
0	approximately 977	
~	1 / 1 points	
,100 d ample	to the previous question. Brain volume for adult women is about cc for women with a standard deviation of 75 cc. Consider the e mean of 100 random adult women from this population. What th percentile of the distribution of that sample mean?	
0	approximately 1088 cc	
0	approximately 1112 cc	
Corr	rect Response	
qn	norm(0.95, mean = 1100, sd = 75/sqrt(100))	
[1	.] 1112	
0	approximately 1110 cc	
0	approximately 1115 cc	
/	1 / 1 points	



You flip a fair coin 5 times, about what's the probability of getting 4 or 5 heads?

6%

O .

19%

Correct Response

$$\binom{5}{4}2^{-5} + \binom{5}{5}2^{-5} \approx 19\%$$

[1] 0.1875

- O 3%
- **O** 12%



1/1 points

6.

The respiratory disturbance index (RDI), a measure of sleep disturbance, for a specific population has a mean of 15 (sleep events per hour) and a standard deviation of 10. They are not normally distributed. Give your best estimate of the probability that a sample mean RDI of 100 people is between 14 and 16 events per hour?



68%

Correct Response

The standard error of the mean is $10/\sqrt{100}=1$. Thus between 14 and 16 is with one standard deviation of the mean of the distribution of the sample mean. Thus it should be about 68%.

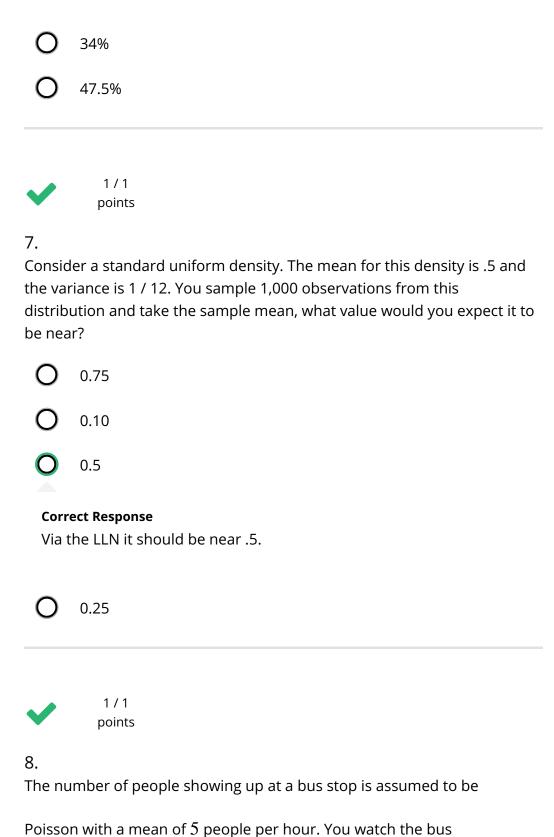
$$pnorm(16, mean = 15, sd = 1) - pnorm(14, mean = 15, sd = 1)$$

[1] 0.6827



95%

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stop for 3 hours. About what's the probability of viewing 10 or fewer

0.12

people?

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ppois(10, lambda = 15)

[1] **0.1185**

0.03

0.06

0.08

