

Quiz 2

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The **due date** for this quiz is **Mon 17 Nov 2014 6:00 AM IST**.

- ☐ In accordance with the Coursera Honor Code, I (Sidhartha Sankar Ray) certify that the answers here are my own work.

Question 1

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

- ☐ $\frac{\sigma^2}{n}$
- ☐ $2\sigma/\sqrt{n}$
- ☐ σ/n
- ☐ σ^2

Question 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?

- ☐ 16%
- ☐ 8%
- ☐ 22%
- ☐ 32%

Question 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. About what brain volume represents the 95th percentile?

- ☐ 1247
- ☐ 1175
- ☐ 977
- ☐ 1223

Question 4

Refer to the previous question. Brain volume for adult women is about 1,100 cc for women with a standard deviation of 75 cc. Consider the sample mean of 100 random adult women from this population. Around what is the 95th percentile of the distribution of that sample mean?

- ☐ 1088 cc
- ☐ 1110 cc
- ☐ 1115 cc
- ☐ 1112 cc

Question 5

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

- ☐ 6%
- ☐ 3%
- ☐ 19%
- ☐ 12%

Question 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?

- ☐ 47.5%

- ☐ 68%
- ☐ 95%
- ☐ 34%

Question 7

Consider a standard uniform density. The mean for this density is .5 and the variance is $1/12$. You sample 1,000 observations from this distribution and take the sample mean, what value would you expect it to be near?

- ☐ 0.5
- ☐ 0.10
- ☐ 0.25
- ☐ 0.75

Question 8

The number of people showing up at a bus stop is assumed to be Poisson with a mean of 5 people per hour. You watch the bus stop for 3 hours. About what's the probability of viewing 10 or fewer people?

- ☐ 0.06
- ☐ 0.08
- ☐ 0.03
- ☐ 0.12

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