

1. The SAT scores of entering freshman at University X have a $N(1200, 90)$ distribution. The SAT scores of entering freshman at University Y have a $N(1215, 110)$ distribution. A random sample of 100 freshman is sampled from University X, and \bar{X} , the sample mean of the 100 scores from University X, is computed. The probability that \bar{X} is greater than 1215, the population mean for University Y, is

- A. 0.0475.
 - B. 0.5000.
 - C. 0.4325.
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2. A 1993 survey conducted by the local paper in Columbus, Ohio, one week before Election Day, asked voters who they would vote for for City Attorney. The goal was to predict the outcome of the upcoming election. Thirty-seven percent said they would vote for the Democratic candidate. On Election Day, 41% actually voted for the Democratic candidate. The number 37% is a

- A. parameter.
 - B. statistic.
 - C. sample.
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3. Incomes in a certain town are strongly right skewed with mean \$36,000 and standard deviation \$7000. A random sample of 10 households is taken. What is the probability the average of the sample is more than \$38,000?

- A. 0.3875
 - B. 0.1831
 - C. Cannot say.
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4. Sodas in a can are supposed to contain an average 12 oz. This particular brand has a standard deviation of 0.1 oz., with an average of 12.1 oz. If the contents in the population of all cans follow a normal distribution, what is the probability that the mean contents of a six-pack are less than 12 oz?

- A. 0.007
 - B. 0.1587
 - C. 0.9928
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5. A machine fills cans of soda which are labeled "12 ounces" according to a normal distribution with mean 12.1 ounces and standard deviation 0.1 ounces. If I buy a 12-pack of the soda, what is the standard deviation of the average contents?

- A. 0.041
- B. 0.029
- C. 0.1

6. A polling company uses random digit dialing to select the households to be interviewed. In one city, in 1000 calls, 15% of the calls reach an unlisted number. This is not surprising, since 18% of the residential phones in that city are unlisted. The number 18% is a

- A. parameter.
 - B. statistic.
 - C. sampling distribution.
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7. Incomes in a certain town are strongly right skewed with mean \$36,000 and standard deviation \$7000. A random sample of 75 households is taken. What is the probability the sample mean is greater than \$37,000?

- A. 0.4432
 - B. 0.1075
 - C. 0
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8. I took a large sample of households in a city, and based on that, estimate the standard deviation of the income for all households in the city is \$800. In order to make a desired conclusion about the income for all the households in the city, I want the sample mean for another sample to have a standard deviation of no more than \$100. How many households must I have in this new sample?

- A. 100
 - B. 8
 - C. 64
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9. Packages of laundry soap are labeled 70 oz., but are actually filled with mean contents of 70.2 oz. and standard deviation 0.6 oz. If I took a random 30 boxes of the soap and weighed the contents of each, they should have a mean of about

- A. 70 oz.
 - B. 70.2 oz.
 - C. 0.11 oz.
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10. Which sample size will give me the smallest standard deviation of \bar{x} ?

- A. 35
- B. 36
- C. Both will be the same.