

Results

SARDA, SANJIT



12

Out of 12 points

02:43

Time for this attempt

Your Answers:

1 1 / 1 point

Suppose the length of time it takes customers to find a parking spot at a large grocery store parking lot follows a normal distribution with a mean of 7.5 minutes and a standard deviation of 2 minutes. Let X denote the variable length of time. Which of the following will correctly calculate the probability of it taking longer than 9 minutes to find a parking spot?

- ☐ $P(z > 9)$
- ☐ $P(x < -9)$
- ☐ $P(x > 0.75)$
- ☒ $P(z > 0.75)$
- ☐ $P(x < 9)$

2 1 / 1 point

Which of the following is **incorrect** about the probability distribution?

- ☒ Different probability density curves will have different total area under the curve.
- ☐ A discrete random variable can have countably infinite values (e.g., the set of all natural numbers)
- ☐ The q th percentile of a probability distribution is the value where the area to its left is $q\%$, and the area to its right is $(100 - q)\%$.
- ☐ The probability distribution tells us the possible values of a random variable and their associated probabilities.

3 1 / 1 point

Which of these is a discrete random variable?

- ☐ The amount of time it takes you to answer this question.
- ☒ The number of emails you get per day.
- ☐ The number of calories contained in a cheese burger.
- ☐ All of the above.

4 1 / 1 point

The distribution of gas consumption for SUVs (mpg) is normally distributed with a center of 24.8 mpg and a standard deviation of 5 mpg. Another data set for a group of sedans is normally distributed with a center of 28 mpg and a standard deviation of 4 mpg. Which one of the following statements is true when the distributions are compared?

- ☐ The distribution for the SUVs is shifted to the right and not as spread out.
- ☐ The distribution for the SUVs is centered at the same value as for the sedans but more spread out
- ☐ The distribution for the sedans is shifted to the right and more spread out.
- ☒ The distribution for the sedans is shifted to the right and not as spread out.

5 1 / 1 point

Which of the following is **true** about a **continuous** random variable? (Select all that apply)

☐ The sum of individual probabilities ($\sum P(x = x_i)$) is equal to 1

☒ The probability of any single value is 0

☐ The variable can only take certain values that can be listed

☒ The probability is measured by area under the curve

6 1 / 1 point

Suppose the ACT reading scores from all ACT test-takers of a certain year follows a Normal distribution. What is the probability that a randomly selected test taker's ACT reading score will have a z-score between -1.5 and 2? (Find the nearest answer)

☐ 0.95

☐ 0.815

☒ 0.91

☐ 0.685

7 1 / 1 point

A police radar gun is used to measure the speeds of cars on a highway. Suppose the speeds of cars are normally distributed with mean 60 mph and standard deviation 6 mph. Cars driving at a speed higher than 70 mph might get a speeding ticket. How do you use the z-table to find the proportion of cars that are likely to get a ticket (i.e., speed higher than 70 mph)?

☒ Find the probability value associated with -1.67 from the z-table.

☒ Find the probability value associated with 1.67 from the z-table and subtract it from 1.

☐ Find the probability value associated with 1.67 from the z-table.

☐ Find the probability value associated with -1.67 from the z-table and subtract it from 1

8 1 / 1 point

The table below describes the smoking habits of a group of asthma sufferers.

	Nonsmoker	Light smoker	Heavy smoker	Total
Men	393	61	74	528
Women	341	67	78	486
Total	734	128	152	1,014

If one of the 1,014 subjects is randomly selected, find the probability that the person chosen is a nonsmoker **given that** the person is a woman. Round to three decimal places.

☐ 0.336

☐ 0.465

☐ 0.479

☒ 0.702

9 1 / 1 point

Suppose the score of a test follows a normal distribution $N(400, 60)$. How do you find the percentile that separates the top 10% of the test takers from the rest?

☐ Find the z-score that has the closest probability to 0.10 from the z-table and covert it to the test score by calculating $400 + 60 \cdot z$

☐ Find the z-score that has the closest probability to 0.90 from the z-table and covert it to the test score by calculating $400 - 60 \cdot z$

☐ Find the z-score that has the closest probability to 0.10 from the z-table and covert it to the test score by calculating $60 + 400 \cdot z$

☒ Find the z-score that has the closest probability to 0.90 from the z-table and covert it to the test score using $400 + 60 \cdot z$

10 1 / 1 point

Suppose that scores on the verbal portion of the SAT among first-year students at a certain university follow a normal distribution. The mean is about 500 and the standard deviation is about 100. Which of the following statements is correct?

☐ The probability that a randomly selected student scored less than 400 is about 0.05.

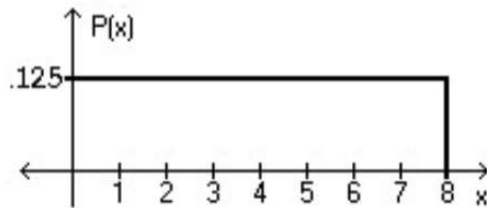


☒ The probability that a randomly selected student scored between 500 and 600 is about 0.34.

- ☐ Andrew's score is in the 95th percentile, so we know his score is 700.
- ☐ John scored 490 and so his score is 10 standard deviations below the mean.

11 1 / 1 point

X is a uniformly distributed random variable. The probability density curve is shown below.



What is the probability that the variable has a value greater than 6?

- ☐ 0.375
- ☐ 0.125



☒ 0.250

- ☐ 0.200

12 1 / 1 point

A fair coin is tossed 500 times. Which of the following statements shows correct understanding of the law of large numbers?

- ☐ You are less likely to get 250 tails than getting any other number of tails in 500 tosses.
- ☐ Since the probability of a tail is 0.5, you should expect exactly 250 tails in 500 tosses according to the law of large numbers.
- ☒ You may not get exactly 250 tails in 500 tosses, but the proportion of tails should be close to 0.5 as the number of tosses increases.
- ☐ You should expect between 200 and 300 tails in 500 tosses.