Congratulations! You passed!

Grade received 100% **To pass** 80% or higher

Go to next item

1. Suppose you have a sample of 100 heights of individuals from a specific population. For this question, let's assume the standard deviation of the **population** is 1 cm. You have found that the **sample mean** of these 100 individuals is 175cm. Suppose you want to build a confidence interval with 99% of confidence level.

1 / 1 point

What expression describes the margin of error for this specific task?

- ( ) $z_{0.99} \cdot \frac{1}{10}$
- ( ) $z_{0.495} \cdot \frac{1}{100}$
- (•) $z_{0.495} \cdot \frac{1}{10}$
- ( ) $z_{0.99} \cdot \frac{1}{100}$

Correct
Correct! As you've seen in the lectures, the formula for the margin of error is $z_{\alpha/2} \cdot \frac{\sigma}{\sqrt{n}}$.

2. The real number z_β represents the value for which the area under the curve between 0 and z_β is equal to β. For example, if $\alpha = 0.5$, $z_{0.5}$ is the real number such that the area between 0 and $z_{0.5}$ is 0.5. Since the Standard Normal Distribution is symmetric about 0, this implies that the area between $-z_{0.2}$ and $z_{0.2}$ is 0.4, which accounts for 40% of the distribution's total area.

1 / 1 point

To determine the precise value of z_β, you can utilize Python or any other software that includes a statistical library. Alternatively, you can refer to the z-tables, which provide manual lookup for these values. Although the use of z-tables has diminished due to advancements in technology, they still find relevance in certain situations, such as Statistics exams that only permit basic calculators.

You can find one such example here. So to find the z value for $\beta = 0.17$ we just lookup in the table for the closest value to 0.17 and look at the respective z. In this case, $z_{0.17} = 0.44$.

Given that, the value for $z_{0.4949}$ is:

- (•) 2.57
- ( ) 2.5
- ( ) 2.07
- ( ) 2.7

Correct
Correct! By following the columns, you can easily get the result.

3. You have a sample of size 20 from a population with unknown mean and standard deviation. You measured that the **sample mean** $\overline{X} = 50$ and the **sample standard deviation**is $s = 10$. A confidence interval of 95% of confidence level is given by:

1 / 1 point

Hint: $t_{0.475} = 2.093$

- ( ) $(48.95, 51.05)$
- (•) $(45.32, 54.68)$
- ( ) $(45.2, 54.8)$
- ( ) $(48.9, 51.1)$

Correct
Correct. Applying the formula $\left(\overline{X} - t_{\alpha/2} \cdot \frac{s}{\sqrt{n}}, \overline{X} + t_{\alpha/2} \cdot \frac{s}{\sqrt{n}}\right)$, you get the result.