Pizza Delivery

When a pizza restaurant's delivery process is operating effectively, pizzas are delivered in an average of 45 minutes with a standard deviation of 6 minutes. To monitor its delivery process, the restaurant randomly selects 15 pizzas each night and records their delivery times. Assume that the population of all delivery times on a given evening is normally distributed.

IF you are sampling from a population that is Normally distributed, regardless of the sample size, the sampling distribution of the mean will also be normally distributed.
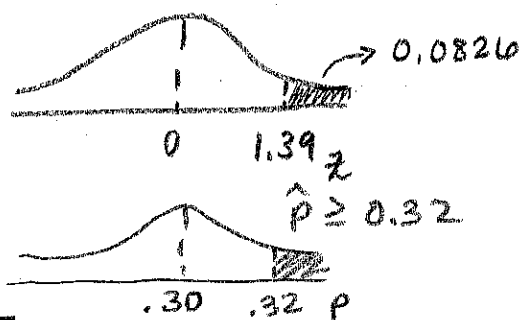
Stimulus

Olympics

On January of this year, a surveying organization released the results of a poll concerning American attitudes toward the 2021 Olympic games in Japan. The poll results were based on telephone interviews with a randomly selected national sample of 1,011 adults.

$$\sigma_{\hat{p}} = \sqrt{\frac{(0.30)(0.70)}{1011}}$$

$\hat{p} = 0.32$

$p = 0.30$

$\sigma_{\hat{p}} = 0.0144$

$$z = \frac{(0.32 - 0.30)}{0.0144} = 1.39$$

0.0826

0 1.39 z

$\hat{p} \geq 0.32$

$.30$ $.32$ p

4   Numeric   2 points   Sampling Distribution of P-Hat Video Question

1   Essay   2 points

Explain why we are able to utilize such a small sample size to determine if the pizza delivery process is operating effectively.

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2   Numeric   4 points   Question 4

Suppose we wish to use the poll's results to justify the claim that more than 30 percent of American adults say that track and field is their favorite Olympic event. The poll actually found that 32 percent of respondents reported that track and field was their favorite event. If we assume that 30 percent of Americans adults say track and field is their favorite event, calculate the probability of observing a sample proportion of 0.32 or more.

0.0824 to 0.0827 inclusive

3   Essay   2 points   Question 5

Based on the probability you computed in part a, would you conclude that more than 30 percent of American adults say that track and field is their favorite Olympic event? Please explain.

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the probability of observing a value that is greater than 0.32 is only 0.0826. As a result there is Not enough evidence to say that more than 32% of the population's favorite sport is track & field

Based on the sampling distribution problem from the video. With a sample size of 60, what would be the probability that the sample proportion of applicants wanting on-campus housing will be within +/-.05 of the actual population proportion.

0.6102

Upper End

$n = 60$

$p = 0.72$

$\sigma = 0.05$

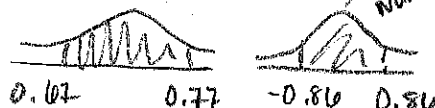$$\sigma_{\hat{p}} = \sqrt{\frac{(0.72)(0.28)}{60}}$$

$\sigma_{\hat{p}} = 0.5797$

we want this!

$$z = \frac{(0.77 - 0.72)}{0.5797}$$

$z = 0.8626$

lower END

$$z = \frac{(0.67 - 0.72)}{0.5797}$$

$z = -0.8626$

$(0.8051 - 0.1949) = \boxed{0.6102}$

0.67 0.77 -0.86 0.86