AP Statistics

2019-03-04 7.2 Assignment

By: **Noah Overcash**

Pg. 439-441 27,29,33,35,37,41,43-46

Question 27

Part A

8 candies, or 32% of the sample, is quite likely per figure 7.11. However, 5 candies, or 20%, is very unlikely and surprising.

Part B

Having 32% orange with 50 candies - theoretically, per the law of averages, as more candies are added to the sample the statistic should approach the parameter.

Question 29

Part A

$\mu[\hat{p}] = p = 0.45$

The mean of the sampling distribution is an unbiased estimator for p.

Part B

stddev = sqrt(p(1-p)/n) = sqrt(.45*.55/25) = 0.0995

The 10% condition is met (assuming the candy machine has more than 250 candies)

Part C

np = 25*.45 = 11.25, n - np = 13.75

The normal condition has been met (both ≥10)

Part D

It would not change anything except for stddev, as both np and n-np would increase, staying at at least 10.

Question 33

We cannot use the normal curve/representation as np = 4.5 and n-np = 10.5.

Question 35

Part A

The mean of the sampling distribution is = p.

$\mu[p]$ = ^p = 0.70

Part B

The 10% rule has been met as 1012 is < 10% of the population of the US.

stddev = sqrt(.7*.3/1012) = 0.0144

Part C

np = .7*1012 = 708.4

n-np = 303.6

The normal condition is met as these are both above 10

Part D

z = -2.08

P = 0.0188

This is highly suspicious as the P is < 0.05

Question 37

4048 – the value inside the sqrt needs to be $(1/2)^2$ in order to make the outer value 1/2 as large. This requires 1/4 the value inside, or multiplying the denominator by four.

Question 41

Part A

z = -1.33, P = 0.0918

Part B

There is approximately a nine percent chance of that specific sample result occurring, which is above five percent and thus statistically likely

Question 43: **B**

Question 44: **C**

Question 45: **B**

Question 46: **B**