

In-Video Quiz Questions for

Unit 5: Part 1 – (1) Sampling variability and CLT for proportions

(12:55) – slide 6, after “That is not exactly the probability that we calculated, but its awfully close to it.”

1. If you were to randomly sample 200 plants from the list of all known plant species, would it be considered unusual if 87.5% of the plants in a random sample of 200 were angiosperms? (Remember, 90% of all plants species are classified as angiosperms.)

- (a) yes
- (b) no

(15:42) – slide 8, after “and they're going to be looking more and more symmetric as the sample size increases.”

2. What would you expect the shape of the sampling distribution of percentages of angiosperms in random samples of 50 plants to look like? (Remember, 90% of all plants species are classified as angiosperms.)

- (a) nearly normal
- (b) uniform
- (c) right skewed
- (d) left skewed

Answers:

1. b

Explanation: Usual: within two standard errors. $Z = (0.875 - 0.9) / 0.0212 = -1.18$, which is less than 2, therefore not unusual.

2. d

Explanation: The success-failure condition is not met: $50 * 0.9 = 45 > 10$ but $50 * 0.1 = 5 < 10$

therefore the CLT doesn't apply and the sampling distribution is not nearly normal. Since the true population proportion is close to 1, and the center of the sampling distribution will be at the true population proportion, we expect a shorter tail on the right side and longer tail on the left, yielding a left skewed distribution.