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ECO 602

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Individual Assignment: Frequentist Concepts

**Question 1: Using distribution functions**

1) What is the probability of observing a count of exactly 3 successes in a binomial distribution with parameters n = 4 and p = 0.75? Paste the R code that you used to find your answer.

p = 0.421875

dbinom(3, 4, 0.75)

**Question 2: Using distribution functions**

2) What is the probability of observing a count of 3 successes or fewer in a binomial distribution with parameters n = 4 and p = 0.75? Paste the R code that you used to find your answer.

p = 0.6835937

pbinom(3, 4, 0.75)

**Question 3: Using distribution functions**

3) What is the probability of observing more than 3 successes in a binomial distribution with parameters n = 5 and p = 0.75? Paste the R code that you used to find your answer.

p = 0.6328125

1 - pbinom(3, 5, 0.75)

**Question 4: Using distribution functions**

4) What is the probability of observing a value of less than 1.2 from a normally distributed population with mean = 2 and standard deviation = 2? Paste the R code that you used to find your answer.

p = 0.3445783

pnorm(1.2, 2, 2)

**Question 5: Using distribution functions**

5) What is the probability of observing a value of greater than 1.2 from a normally distributed population with mean = 2 and standard deviation = 2? Paste the R code that you used to find your answer.

p = 0.6554217

1 - pnorm(1.2, 2, 2)

**Question 6: Using distribution functions**

6) What is the probability of observing a value between 1.2 and 3.2 from a normally distributed population with mean = 2 and standard deviation = 2? Paste the R code that you used to find your answer.

p = 0.3811686

pnorm(3.2, 2, 2) - pnorm(1.2, 2, 2)

**Question 7: Sampling distribution**

7) Describe how the shape of the histogram changes as you continue to press the sample button.

On the first few samples, the shape of the histogram is relatively normally distributed, but as I continue to press the sample button, more values come up towards the beta skew, making this histogram non-normally distributed. As I keep pressing the sample button, the shape of the histogram matches the shape of the alpha/beta distribution more and more, quickly obtaining a strong beta skew.

**Question 8: Sampling distribution**

8) Describe how the shape of the distribution changes as you continue to press the sample button.

Like the above problem the histogram is fairly normal for the first few samples, and then begins to skew towards beta. The skew is not as strong as when the sample size is 1. The skew is much shorter with a sample size of 2 than it is of 1.

**Question 9: Sampling distribution**

9) Describe how the shape of the histogram changes as you continue to press the sample button.

The distribution is very normally distributed for at least the first 15 clicks of the sample button. As long as I clicked the sample button, the distribution never really left a normal curve to develop a beta skew.