Evan Krause
ECO 602
Prof. Michael Nelson
10/18/22

Q1
dbinom(3, 4, 0.75)
"0.421875"

Q2
pbinom(3, 4, 0.75) + pbinom(2, 4, 0.75) + pbinom(1, 4, 0.75)
"0.9960938"

Q3
pbinom(5, 5, 0.75, lower.tail = T) - pbinom(3, 5, 0.75, lower.tail = T)
"0.6328125"

Q4
pnorm(1.2, 2, 2)
"0.3445783"

Q5
pnorm(13,2,2)-pnorm(1.2,2,2)
"0.6554217"

Q6
pnorm(3.2,2,2)-pnorm(1.2,2,2)
"0.3811686"

Q7
"As you press the sample button, the histogram more closely matches the sampling distribution defined by the levels of alpha and beta"

Q8
"As you press the sample button with the higher sample size, the histogram more closely resembles a normal distribution"

Q9
"As with the prior example, as you press the sample button with the higher sample size, the histogram more closely resembles a normal distribution"

Q10
Why is there such a drastic change in the shape of the sampling distribution when you change the sample size from 1 to 2?

The drastic change from sample size of 1 to sample size of 2 is because of the effect that sample size has upon the standard deviation of the distribution. At n = 1, there is a uniform likelihood across draws for the sample. At n = 2, the resulting distribution is significantly more normal.

Q11
"the two main factors that determine the width of the sampling distribution are the ratio between alpha/beta and the sample size"

Q12
15,625

Q13
$B = 25^{1328400}$