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Probability and Frequentist Concepts Assignment

1) 0.421875 or 42.2%

`dbinom(3, 4, 0.75)`

2) 0.6835937 or 68.4%

`pbinom(3, 4, 0.75)`

3) 0.6328125 or 63.3%

`sum(dbinom(4:5, 5, 0.75))`

4) 0.3445783 or 34.4%

`pnorm(1.2, 2, 2)`

5) 0.6554217 or 65.5%

`1-(pnorm(1.2, 2, 2))`

6) 0.3811686 or 38.1%

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

- 7) The histogram in this case didn't change drastically, if anything it created a stronger shape. After several samples the left side of the histogram had most of the values. The histogram was shaped with the shape of the curve. The values followed similar drawings but started to even out the % of lower percentage values.
- 8) After the first pull the histogram looked nothing like the curve I created. After several more pulls the histogram began to look more and more like the curve (represented the curve better than q7). What I thought was interesting is that the histogram had more drawings from the lower end of the curve (right side) and even had some outliers unlike q7.
- 9) The histogram started to create a bell-shaped curve in the middle of the main area of the curve. The histogram started to get more and more even distributed and most of the draws shifted to the right.
- 10) There is such a difference between the difference in sample sizes because it is creating a smaller probability that the number drawn is different than the first. Which would be placed into a different bin.
- 11) Sample size and standard deviation.
- 12) $25 \times 25 \times 25 = 15,625$
- 13) If you want to find the number of books possible if an extra spot was added, you would multiply B (number of books in library) times 25 since 25 is the number of letters in the alphabet.