Assignment 8.3

1. A recent national study showed that approximately 44.7% of college students have used Wikipedia as a source in at least one of their term papers.

Let X equal the number of students in a random sample of size n = 31 who have

used Wikipedia as a source.

Perform the below operations:

R file probability_basics.R attached

a. Find the probability that X is equal to 17

   dbinom(17, size=31, prob=0.447) = **0.7532248**

b. Find the probability that X is at most 13

   dbinom(0, size=31, prob=0.447) + dbinom(1, size=31, prob=0.447) + dbinom(2, size=31, prob=0.447) + ... +dbinom(13, size=31, prob=0.447) = pbinom(13,size=31,prob=0.447) = **0.451357**

c. Find the probability that X is bigger than 11.

   This is 1 – probability of at most 11 success

   1 – pbinom(11,size=31,prob=0.447) = **0.8020339**

d. Find the probability that X is at least 15.

   This is 1 – probability of at most 14 success

   1 – pbinom(14,size=31,prob=0.447) = **0.406024**

e. Find the probability that X is between 16 and 19, inclusive

   dbinom(16,size=31,prob=0.447) + dbinom(17,size=31,prob=0.447) + dbinom(18,size=31,prob=0.447) + dbinom(19,size=31,prob=0.447) = **0.2544758**