ACADGILD 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:**
> **a. Find the probability that X is equal to 17**
> **b. Find the probability that X is at most 13**
> **c. Find the probability that X is bigger than 11.**
> **d. Find the probability that X is at least 15.**
> **e. Find the probability that X is between 16 and 19, inclusive**

a)Find the probability that X is equal to 17
ANSWER
>dbinom(17, size=31, prob=0.447)
[1] 0.07532248

b)Find the probability that X is at most 13
ANSWER
>pbinom(13, size=31, prob=0.447)
[1] 0.451357

c)Find the probability that X is bigger than 11
ANSWER
> pbinom(11, size=31, prob=0.447, lower.tail=FALSE)
[1] 0.8020339

d)Find the probability that X is at least 15.
ANSWER
> pbinom(14, size=31, prob=0.447, lower.tail=FALSE)
[1] 0.406024

e)Find the probability that X is between 16 and 19, inclusive
ANSWER
> sum(dbinom(16:19, size=31, prob=0.447))
[1] 0.2544758
> diff(pbinom(c(19, 16), size=31, prob=0.447, lower.tail=FALSE)
[1] 0.2544758