Math 32

Parameters

Probability Mass Function

Cumulative Probability

PMF Exercise

Cumulative Exercise

Submission

Start Over

Binomial Distribution

The binomial distribution is a discrete probability distribution where we can compute the probability of observing k successes, each with probability p, among n trials with the probability mass function

$$P(X = k) = \binom{n}{k} p^k (1-p)^{n-k}$$

Cumulative Exercise

Use `R` code with `ggplot` to visualize the cumulative probability for “What is the probability that there are more than 6 songs with official music videos in a playlist of 10 songs?”

Code Start Over Run Code

```
kvals <- 0:n
pmf   <- dbinom(kvals, n, p)
tf    <- kvals > 6
df    <- data.frame(kvals, pmf, tf)
df %>%
  ggplot(aes(x = kvals, y = pmf, fill = tf)) +
  geom_bar(stat = "identity") +
  labs(title = "Cumulative Probability",
       subtitle = "k is more than 6",
       caption = "Math 32",
       x = "k",
       y = "probability") +
  scale_x_continuous(breaks = 0:n,
                     labels = as.character(0:n))

```

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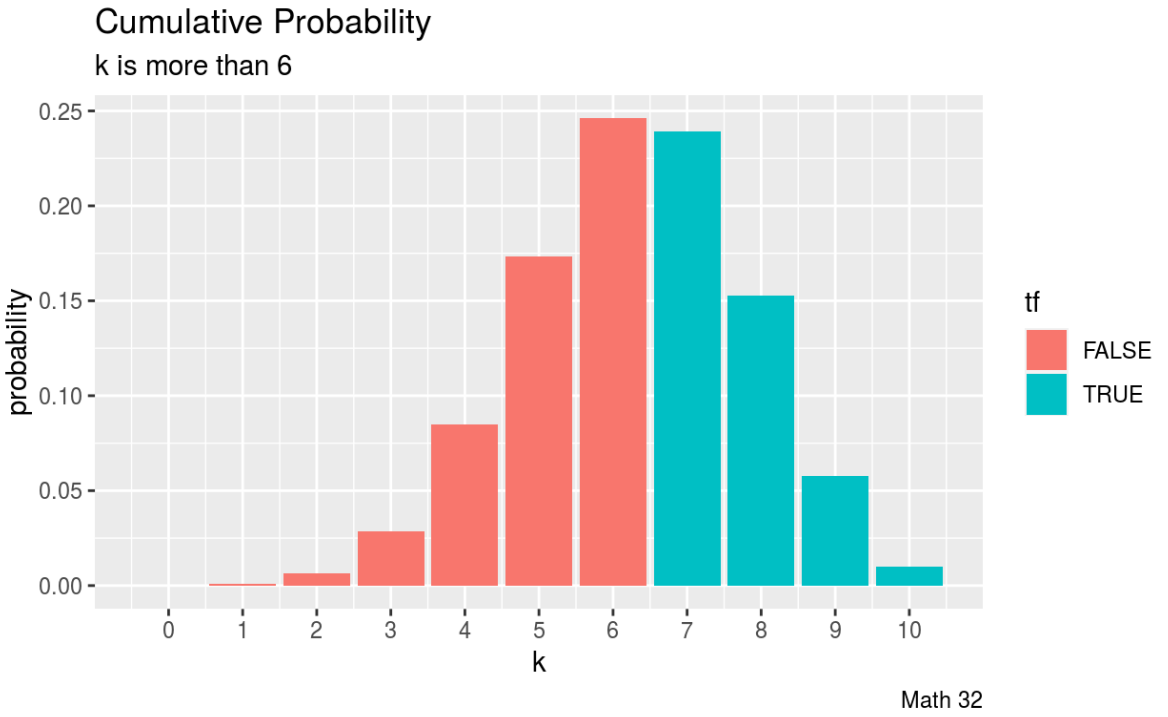

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