Math 32

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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

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

PMF Exercise

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

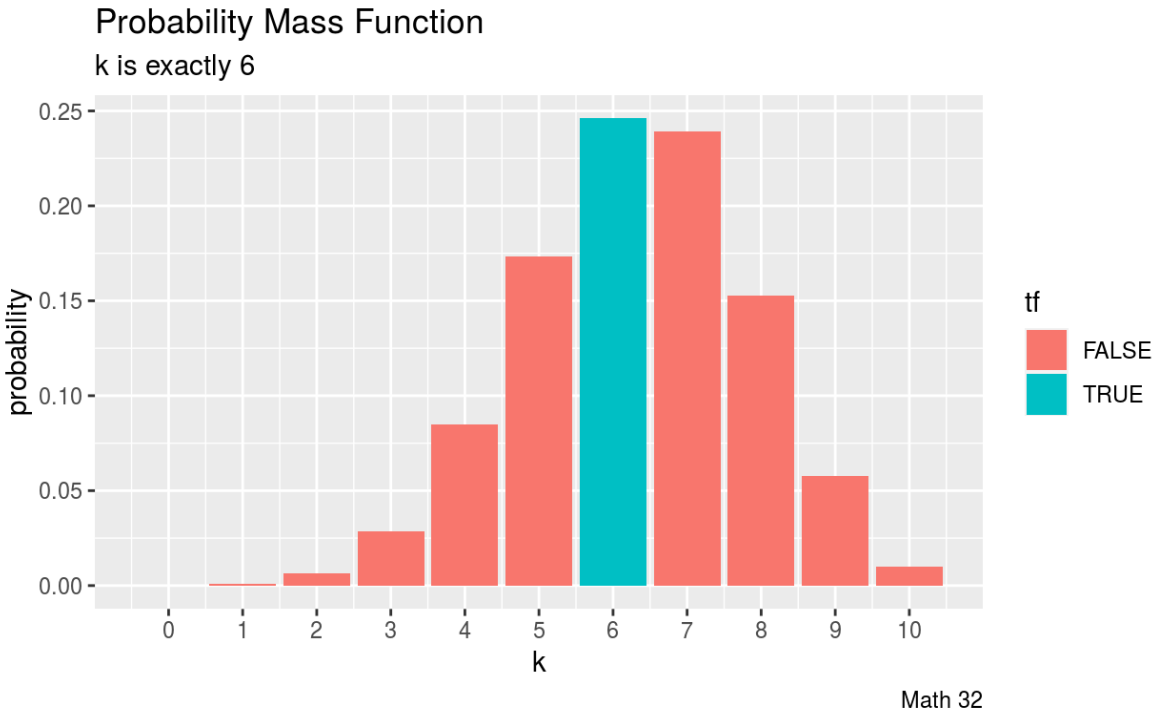
Code | Start Over | Run Code

```
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 = "Probability Mass Function",
       subtitle = "k is exactly 6",
       caption = "Math 32",
       x = "k",
       y = "probability") +
  scale_x_continuous(breaks = 0:n,
                     labels = as.character(0:n))
```

Math 32

- Parameters
- Probability Mass Function
- Cumulative Probability
- PMF Exercise
- Cumulative Exercise
- Submission

Start Over



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