PSTAT 10 Worksheet 6

Setup

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.1     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
set.seed(10)
```

Problem 1

1. X ~ 3
2.

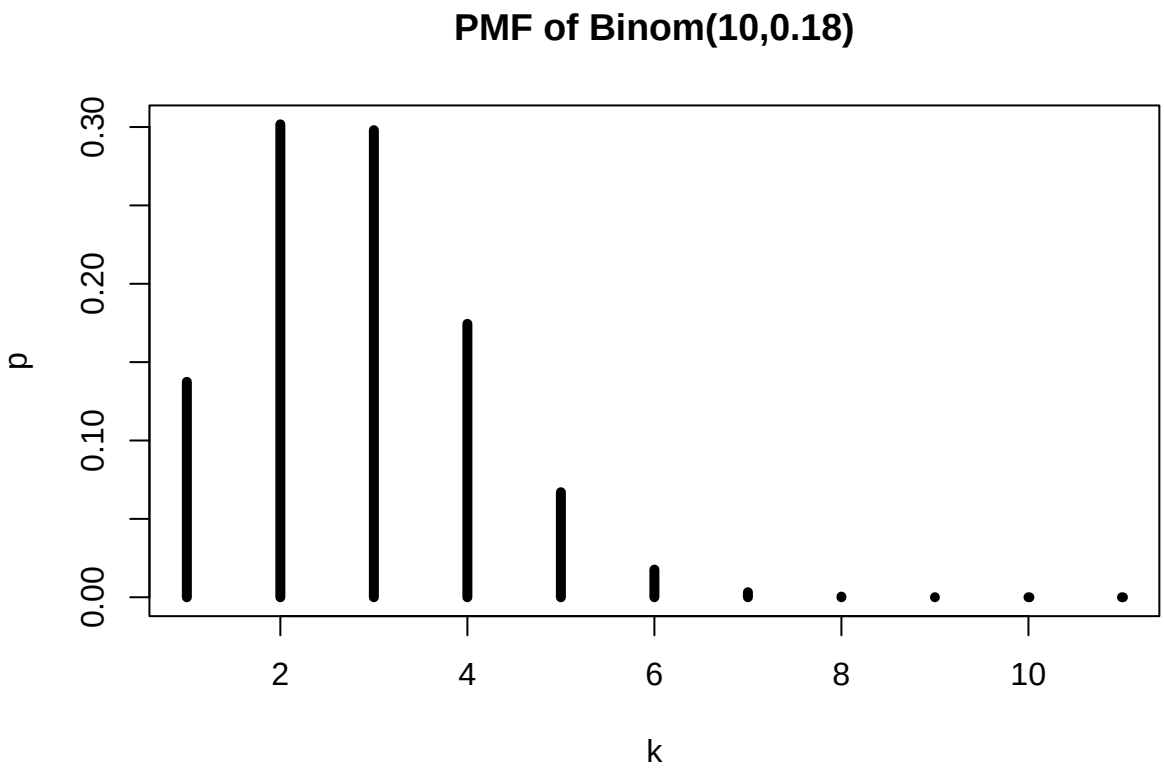
```
mean(rbinom(10000, 10, 0.3))
```

```
## [1] 3.0094
```

The estimated number of heads is 3.0094.

Problem 2

```
plot(dbinom(c(0:10),10,0.18), type="h", lwd=5, xlab="k", ylab="p", main="PMF of Binom(10,0.18)")
```



Problem 3

```
roll_15 <- function()
{
    rolls <- sample(1:6, 15, replace=TRUE)
    sums <- cumsum(rolls)
    return(which(sums >= 15)[1])
}

mean(replicate(10000, roll_15()))
```

```
## [1] 4.761
```

The expected number of rolls to get a score that exceeds 15 is 4.761.