Chapter-2 Exercises

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What is qplot?

```
qplot
```

```
## function (x, y, ..., data, facets = NULL, margins = FALSE, geom = "auto",
##     xlim = c(NA, NA), ylim = c(NA, NA), log = "", main = NULL,
##     xlab = NULL, ylab = NULL, asp = NA, stat = deprecated(),
##     position = deprecated())
## {
##     deprecate_soft0("3.4.0", "qplot()")
##     caller_env <- parent.frame()
##     if (lifecycle::is_present(stat))
##         lifecycle::deprecate_stop("2.0.0", "qplot(stat)")
##     if (lifecycle::is_present(position))
##         lifecycle::deprecate_stop("2.0.0", "qplot(position)")
##     check_character(geom)
##     exprs <- enquos(x = x, y = y, ...)
##     is_missing <- vapply(exprs, quo_is_missing, logical(1))
##     is_constant <- (!names(exprs) %in% ggplot_global$all_aesthetics) |
##         vapply(exprs, quo_is_call, logical(1), name = "I")
##     mapping <- new_aes(exprs[!is_missing & !is_constant], env = parent.frame())
##     consts <- exprs[is_constant]
##     aes_names <- names(mapping)
##     mapping <- rename_aes(mapping)
##     if (is.null(xlab)) {
##         if (quo_is_missing(exprs$x)) {
##             xlab <- ""
##         }
##         else {
##             xlab <- as_label(exprs$x)
##         }
##     }
##     if (is.null(ylab)) {
##         if (quo_is_missing(exprs$y)) {
##             ylab <- ""
##         }
##         else {
##             ylab <- as_label(exprs$y)
##         }
##     }
```

```
##     if (missing(data)) {
##         data <- data_frame0()
##         facetvars <- all.vars(facets)
##         facetvars <- facetvars[facetvars != "."]
##         names(facetvars) <- facetvars
##         facetsdf <- as.data.frame(mget(facetvars, envir = caller_env))
##         if (nrow(facetsdf))
##             data <- facetsdf
##     }
##     if ("auto" %in% geom) {
##         if ("sample" %in% aes_names) {
##             geom[geom == "auto"] <- "qq"
##         }
##         else if (missing(y)) {
##             x <- eval_tidy(mapping$x, data, caller_env)
##             if (is.discrete(x)) {
##                 geom[geom == "auto"] <- "bar"
##             }
##             else {
##                 geom[geom == "auto"] <- "histogram"
##             }
##             if (is.null(ylab))
##                 ylab <- "count"
##         }
##         else {
##             if (missing(x)) {
##                 mapping$x <- quo(seq_along(!!mapping$y))
##             }
##             geom[geom == "auto"] <- "point"
##         }
##     }
##     p <- ggplot(data, mapping, environment = caller_env)
##     if (is.null(facets)) {
##         p <- p + facet_null()
##     }
##     else if (is.formula(facets) && length(facets) == 2) {
##         p <- p + facet_wrap(facets)
##     }
##     else {
##         p <- p + facet_grid(rows = deparse(facets), margins = margins)
##     }
##     if (!is.null(main))
##         p <- p + ggtitle(main)
##     for (g in geom) {
##         params <- lapply(consts, eval_tidy)
##         p <- p + do.call(paste0("geom_", g), params)
##     }
##     logv <- function(var) var %in% strsplit(log, "")[[1]]
##     if (logv("x"))
##         p <- p + scale_x_log10()
##     if (logv("y"))
##         p <- p + scale_y_log10()
##     if (!is.na(asp))
##         p <- p + theme(aspect.ratio = asp)
```

```
##     if (!missing(xlab))
##         p <- p + xlab(xlab)
##     if (!missing(ylab))
##         p <- p + ylab(ylab)
##     if (!missing(xlim) && !all(is.na(xlim)))
##         p <- p + xlim(xlim)
##     if (!missing(ylim) && !all(is.na(ylim)))
##         p <- p + ylim(ylim)
##     p
## }
## <bytecode: 0x000001d5ba5d3608>
## <environment: namespace:ggplot2>
```

qplot Example: Scatterplot

```
x <- c(-1, -.8, -.6, -.4, -.2, 0, .2, .4, .6, .8, 1)
x
```

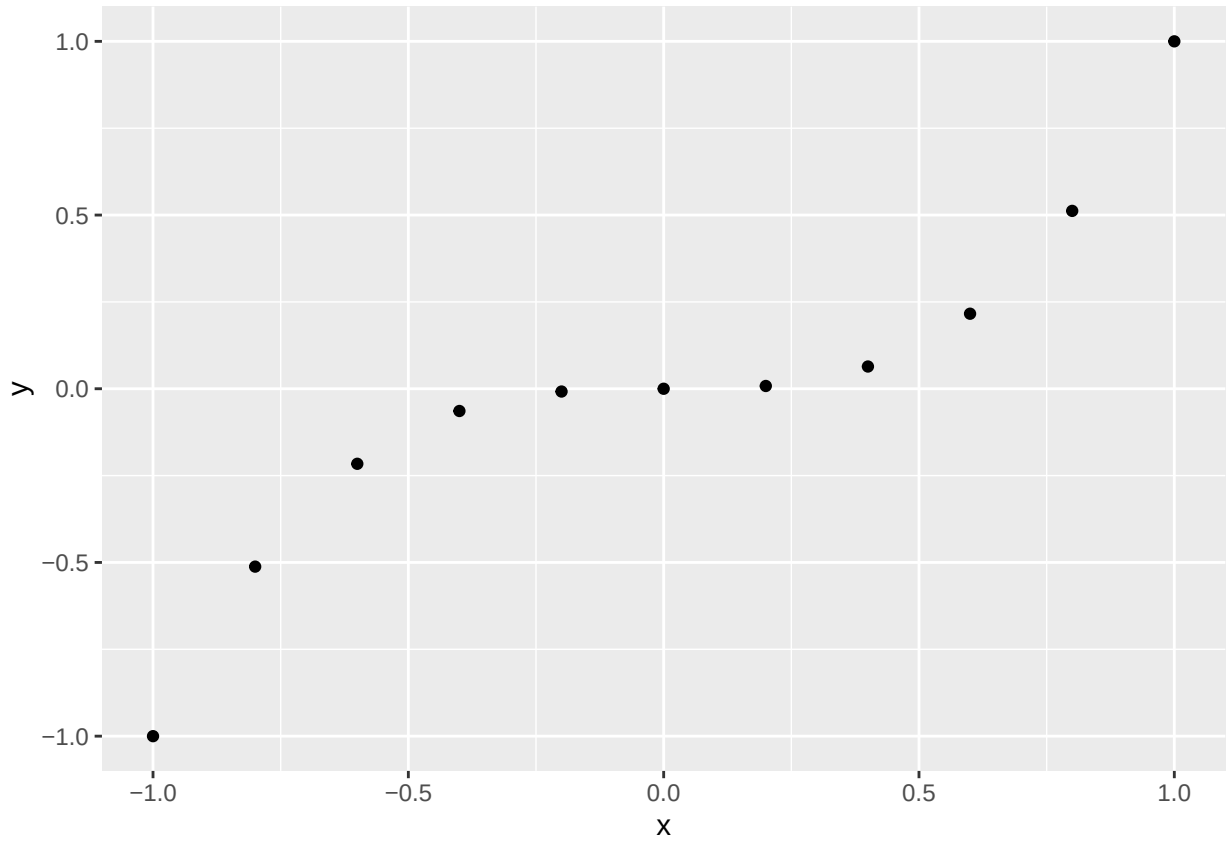
```
##  [1] -1.0 -0.8 -0.6 -0.4 -0.2  0.0  0.2  0.4  0.6  0.8  1.0
```

```
y <- x^3
y
```

```
##  [1] -1.000 -0.512 -0.216 -0.064 -0.008  0.000  0.008  0.064  0.216  0.512
## [11]  1.000
```

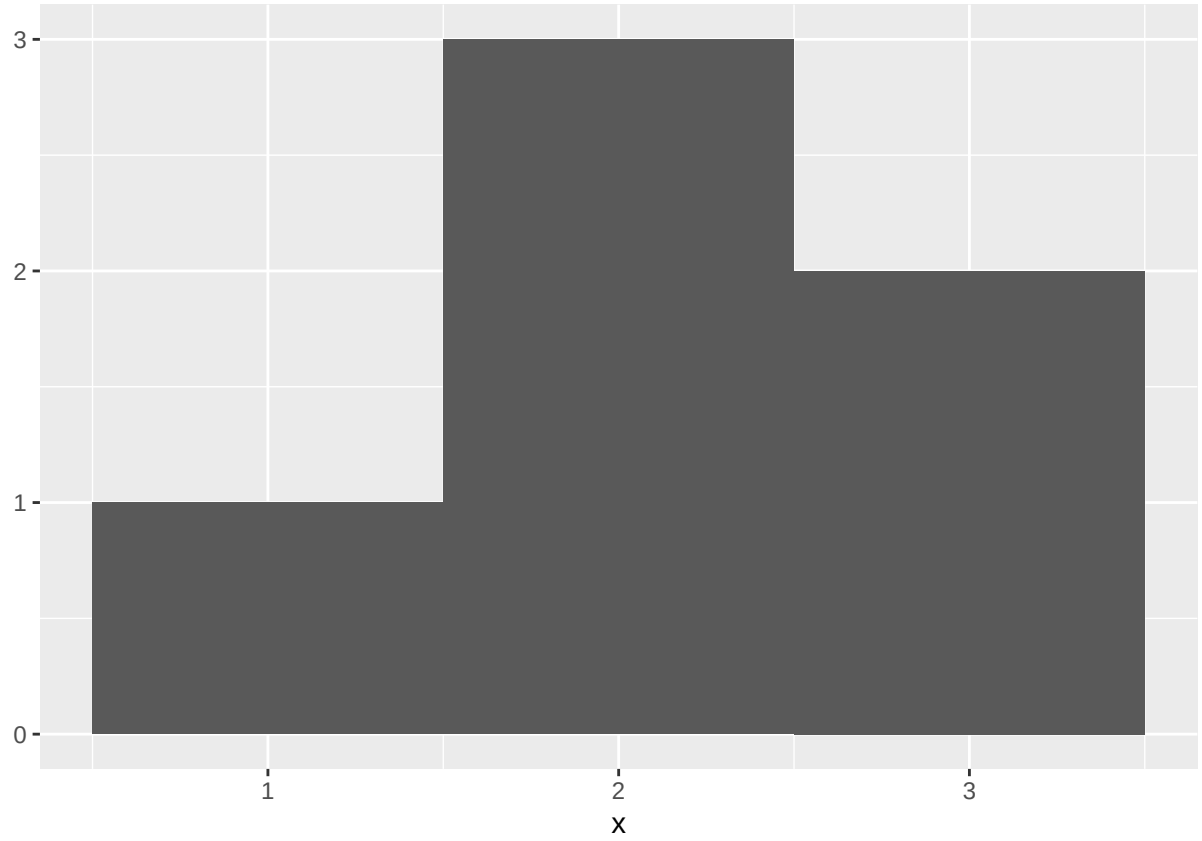
```
qplot(x, y)
```

```
## Warning: `qplot()` was deprecated in ggplot2 3.4.0.
## This warning is displayed once every 8 hours.
## Call `lifecycle::last_lifecycle_warnings()` to see where this warning was
## generated.
```

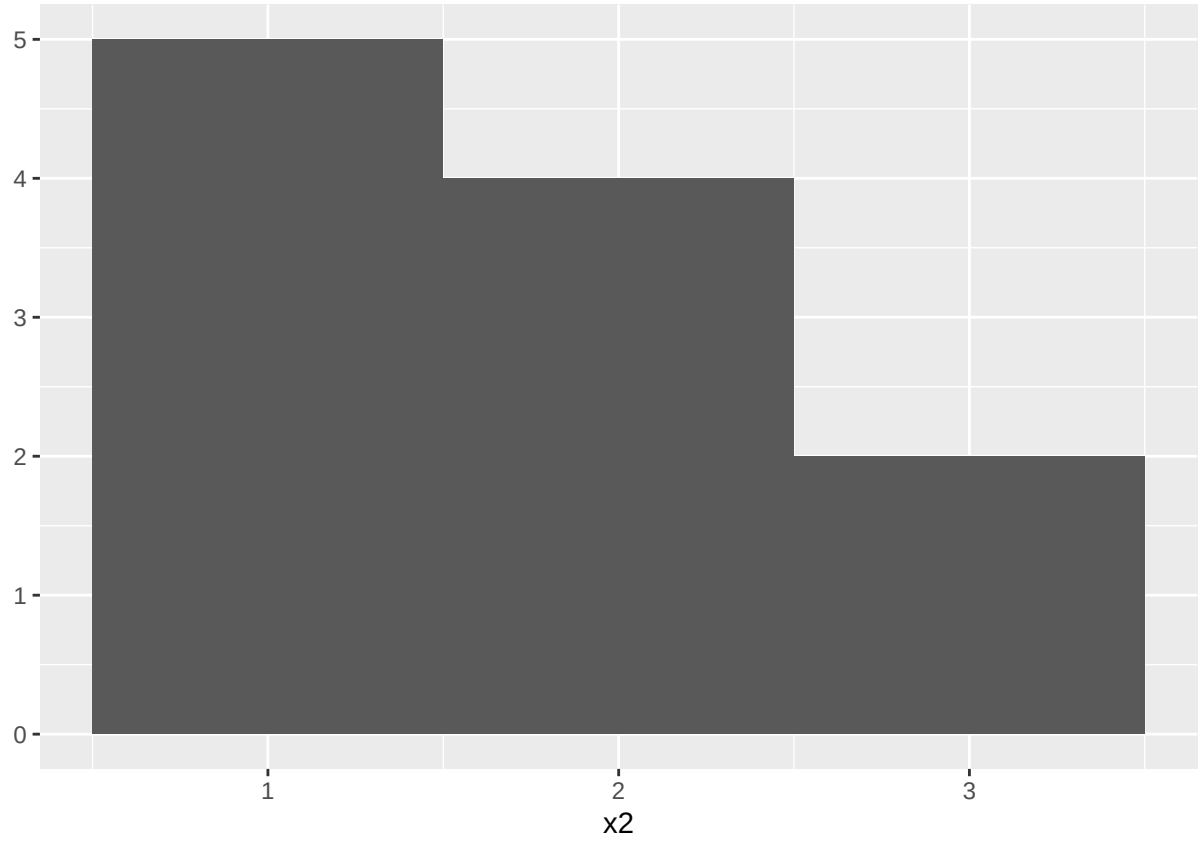


qplot Example: Histogram

```
x <- c(1, 2, 2, 2, 3, 3)
qplot(x, binwidth = 1.0)
```

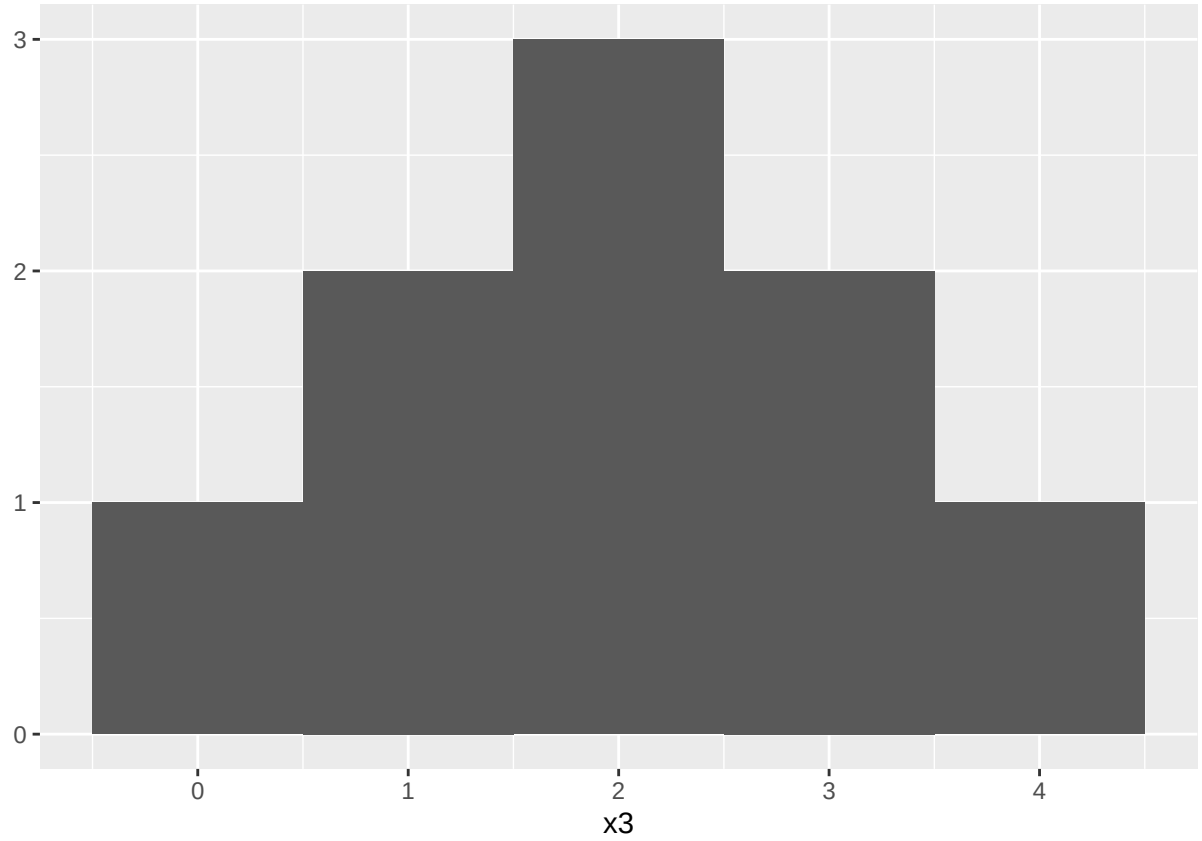



```
# binnwidth notworking correctly

x2 <- c(1, 1, 1, 1, 1, 2, 2, 2, 2, 3,3)
qplot(x2, binwidth = 1.0)
```



Exercise 1:

```
x3 <- c(0, 1, 1, 2, 2, 2, 3, 3, 4)
# There are going to be 5 bars
# They will appear in betweeen each whole number
# the first bar will be 1 high, the second one will be 2 high
# the third one will b e3 high, the fourth one will be 2 high
# and the fifth on will be 1 high

qplot(x3, binwidth = 1)
```



Dice Rolling

Roll Function

```
roll <- function(bones = 1:6) {
  dice <- sample(bones, size = 2, replace = TRUE)
  sum(dice)
}
```

replicate function

```
replicate(3, 1 + 1)
```

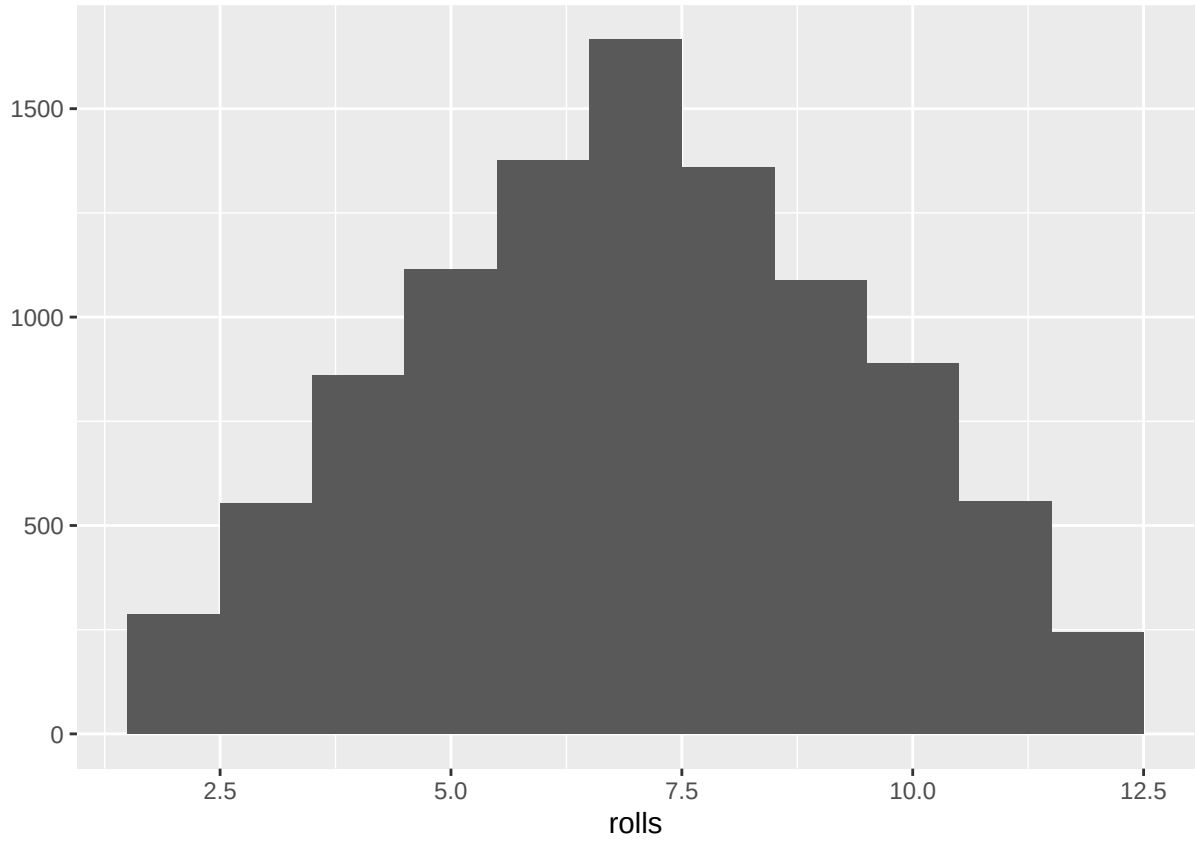
```
## [1] 2 2 2
```

```
replicate(10, roll())
```

```
##  [1]  8 12  5  5  6  3  6  7  7  7
```

Histogram of Rolled Dice

```
rolls <- replicate(10000, roll())
qplot(rolls, binwidth = 1)
```

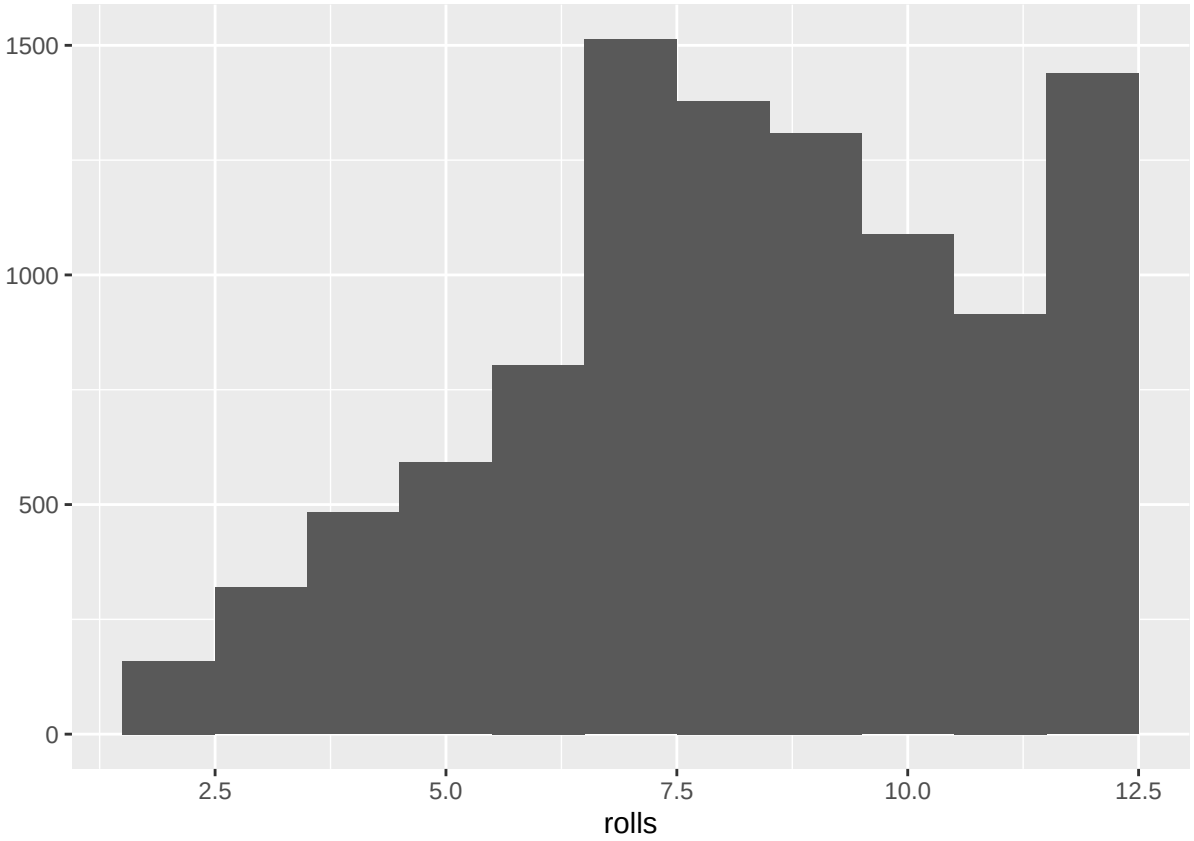


Weighting the Die

```
roll <- function() {
  die <- 1:6
  dice <- sample(die, size = 2, replace = TRUE,
                 prob = c(1/8, 1/8, 1/8, 1/8, 1/8, 3/8))
  sum(dice)
}
```

Histogram of Weigted Dice

```
rolls <- replicate(10000, roll())
qplot(rolls, binwidth = 1)
```


1500
1000
500
0
2.5
5.0
7.5
10.0
12.5
rolls