> set.seed(2)

> x <- rchisq(20, 5)

> e <- rnorm(length(x), 0, 5)

> y <- 3 + 2\*x +e

> x\_bar <- mean(x)

> y\_bar <- mean(y)

> numerator <- sum((x - x\_bar) \* (y - y\_bar))

> denominator <- sum((x - x\_bar)^2)

> b\_hat <- numerator/denominator

> b\_hat

[1] 2.155596

> lm(y~x)

Call:

lm(formula = y ~ x)

Coefficients:

(Intercept) x

1.720 2.156

> rm(b\_hat, denominator, e, numerator, x, x\_bar, y, y\_bar)

> vector1 <- rbinom(100, 1, 0.5)

> vector2 <- sample(c(-1, 0, 1), 100, replace = TRUE)

> same <- which(vector1 == vector2)

> print(same)

[1] 5 6 17 18 19 20 31 37 39 41 46 51 52 54 57 59 62 73 75 77 78 81 84 85 86 87 91 92 95

> rm(same, vector1, vector2)

> poker\_vector <- c(140, -50, 20, -120, 240)

> roulette\_vector <- c(-24, -50, 100, 350, 10)

> days\_vector <- c("Mon", "Tues", "Wed", "Thu", "Fri")

> names(poker\_vector) <- days\_vector

> names(roulette\_vector) <- days\_vector

> poker\_midweek <- poker\_vector[c("Tues", "Thu")]

> ave\_poker\_midweek <- mean(poker\_midweek)

> max(poker\_vector)

[1] 240

> which.max(poker\_vector)

Fri

5

> which(poker\_vector > roulette\_vector)

Mon Fri

1 5

> total <- poker\_vector + roulette\_vector

> total\_poker <- sum(poker\_vector)

> total\_roulette <- sum(roulette\_vector)

> total\_poker > total\_roulette

[1] FALSE

> rm(ave\_poker\_midweek, days\_vector, poker\_midweek, poker\_vector, roulette\_vector, total, total\_poker, total\_roulette)

> set.seed(0)

> num <- sample(c(1:10), 1000, replace = TRUE)

> a <- sample(c(1:1000), 20, replace = TRUE)

> num1 <- replace(num, num == c(1:10), NA)

> missing <- is.na(num1)

> missing1 <- which(missing == TRUE)

> missing1

[1] 11 18 23 37 38 46 63 74 84 88 110 114 115 118 140 154 155 156 188 190 199 203 220 224 234 237 274 296 297

[30] 305 309 312 320 333 334 355 362 366 379 388 389 392 434 438 443 451 454 457 461 462 465 468 486 501 509 524 530 534

[59] 564 567 572 586 590 593 597 610 621 623 627 634 649 654 656 676 686 698 700 710 731 739 741 749 760 785 791 792 796

[88] 797 807 811 814 839 840 845 863 871 911 928 945 950 956 961 969 970 982 990 992

> rm(a, missing, missing1, num, num1)

> set.seed(pi)

> num <- sample(c(1:10), 1000, replace = TRUE)

> a <- sample(c(1:20), 20, replace = TRUE)

> num\_1 <- which(num %in% c(1:10))

> b <- match(num\_1, a, nomatch = 0)

> b2 <- replace(b, b != 0, NA)

> matches <- which(b2 %in% NA)

> matches

[1] 1 2 3 4 6 7 10 11 12 13 17

> rm(a, b, b2, matches, num, num\_1)