WU #23

Math 58B, Spring 2022

Thursday, April 21, 2022

Your Name: _____

Names of people you worked with: _____

Instructions: Work on this problem in class with your group. Do your best. This piece of paper will be collected during class.

Task: Consider a sample of 15 books (5 observations are shown here). Given the regression of `weight` (grams of book) on `volume` (cm^3) and `cover` (hardback or paperback), interpret the two coefficients below (0.718 and -184.05).

```
##   volume weight cover
## 1    885    800    hb
## 2   1016    950    hb
## 3   1125   1050    hb
## 4    239    350    hb
## 5    701    750    hb
```

```
allbacks %>%
  lm(weight ~ volume + cover, data = .) %>%
  tidy()
```

```
## # A tibble: 3 x 5
##   term        estimate std.error statistic      p.value
##   <chr>          <dbl>     <dbl>     <dbl>        <dbl>
## 1 (Intercept)  198.      59.2         3.34 0.00584
## 2 volume         0.718    0.0615     11.7  0.0000000660
## 3 coverpb     -184.      40.5        -4.55 0.000672
```

Solution:

- **0.718** Keeping cover type constant, books with one additional cm^3 of volume will be predicted to be 0.718 g heavier than books without one additional cm^3 of volume.
- **-184.05** Keeping volume constant, hardback books are predicted to weight 184.05 g more than books with paper backs.