1. The assumptions behind “standard confidence intervals.”
   (a) Random sampling
   (b) “true” model
   (c) “normal” error

2. Standard errors and confidence intervals by bootstrap.

```r
l = lm(loss ~ Fe, corrosion)
summary(l)

Call:
  lm(formula = loss ~ Fe, data = corrosion)

Residuals:
   Min     1Q   Median     3Q    Max
-3.798 -1.946  0.297  0.992  5.743

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) 129.79      1.40   92.5 < 2e-16
Fe           -24.02     1.28   -18.8 1.1e-09

Residual standard error: 3.06 on 11 degrees of freedom
Multiple R-squared: 0.97, Adjusted R-squared: 0.967
F-statistic: 352 on 1 and 11 DF,  p-value: 1.06e-09

s = do(1000) * lm(loss ~ Fe, resample(corrosion))
head(s)

  Intercept    Fe    sigma  r.squared
  1  129.9  -22.9  1.623  0.9931
  2  129.3  -24.5  2.228  0.9781
  3  128.6  -21.9  2.276  0.9824
  4  129.8  -23.3  2.812  0.9777
  5  129.7  -22.8  2.641  0.9708
  6  130.1  -23.1  3.674  0.9409

sd(s)

  Intercept    Fe    sigma  r.squared
  1.46513  1.36159  0.51749  0.01369

confint(s)

  name     lower     upper
  1 Intercept 127.0859 132.8361
  2       Fe   -26.9586  -21.6148
  3   sigma     1.7706     3.8016
  4 r.squared   0.9432     0.9969
```
The dataframe `Baseball21` has data on the seasons of every baseball team in this century (through 2010). While this is not a random sample of any larger population, we might think of this as a random sample from a theoretical population of all seasons that could have been.

1. Fit a model to predict `attendance` from \(\bar{W}\) (wins). Interpret the coefficients of this model other than the intercept.
2. Use the “standard” way to compute the standard error of and a 95% confidence interval for the coefficient of \(\bar{W}\).
3. Use the bootstrap method to compute the standard error of and a 95% confidence interval for the coefficient of \(\bar{W}\).
4. Compare the intervals in 2 and 3. To what extent do they agree? How do they disagree?
5. Now fit a model for attendance that predicts `attendance` from both \(\bar{W}\) and \(LG\) (the league that a team is in). Interpret the coefficients other than the intercept.

6. Use the bootstrap to compute confidence intervals for the two coefficients.

7. Using your answer to 6, would you say that wins and league are both useful for predicting attendance?