Problem 2

Chapter 5, Exercise 6 (Sec. 5.4, p. 199)

Part A

```
fit = glm(default ~ income + balance, family = 'binomial')
summary(fit)$coef
```

```
##                   Estimate   Std. Error    z value      Pr(>|z|)
## (Intercept) -1.154047e+01 4.347564e-01 -26.544680 2.958355e-155
## income       2.080898e-05 4.985167e-06   4.174178  2.990638e-05
## balance      5.647103e-03 2.273731e-04  24.836280 3.638120e-136
```

Part B

```
boot.fn = function(d, i)
  return( coef(lm(default ~ income + balance, data = d, subset = i)) )
```

Part C

```
boot.fn(Default, 1:nrow(Default))
```

```
##  (Intercept)       income      balance
## 9.077603e-01 4.604568e-07 1.318050e-04
```

```
boot(Default, boot.fn, 1000)
```

```
##
## ORDINARY NONPARAMETRIC BOOTSTRAP
##
##
## Call:
## boot(data = Default, statistic = boot.fn, R = 1000)
##
##
## Bootstrap Statistics :
##         original        bias     std. error
## t1* 9.077603e-01  6.463132e-05 6.451908e-03
## t2* 4.604568e-07 -3.352490e-10 1.283030e-07
## t3* 1.318050e-04 -7.879041e-09 6.585405e-06
```

Part D

The estimated standard errors obtained using the `glm()` function and the bootstrap function were within a fairly small range of each other. `glm()` resulted in standard errors of `[4.3e-1, 4.9e-6, 2.3e-4]`, while bootstrap resulted in `[6.5e-3, 1.3e-7, 6.6e-6]`, both of which equate to very small errors. As a result, we can see that the two methods are interchangeable in this situation.