Economics 311 — Fall 2017
Daily Problem #10 — October 2

(Repeated example from Friday)

```
. reg gpoints hsgpa satv100 satm100 irdr

      Source |       SS           df       MS      Number of obs   =       614
-------------+----------------------------------   F(4, 609)       =     21.59
       Model |  54.5848954         4  13.6462238   Prob > F        =    0.0000
    Residual |   384.93942       609  .632084434   R-squared       =    0.1242
-------------+----------------------------------   Adj R-squared   =    0.1184
       Total |  439.524316       613  .717005409   Root MSE        =    .79504

------------------------------------------------------------------------------
     gpoints |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
       hsgpa |   .3537593   .0919229     3.85   0.000     .1732349    .5342836
     satv100 |   .0504954    .050856     0.99   0.321     -.049379    .1503697
     satm100 |   .1301921   .0513652     2.53   0.012     .0293176    .2310666
        irdr |   .2629642   .0708958     3.71   0.000     .1237343    .4021941
       _cons |    -.54605   .4460842    -1.22   0.221      -1.4221         .33
------------------------------------------------------------------------------
```

1. Two lines of the table in the top right of the Stata regression output are highlighted in yellow.

   a. In the first line, what are the 4 and 609 numbers following F? How do they relate to the number of observations in the sample (*N*) and the number of explanatory variables (*K*)?
   b. What null hypothesis is being tested by this *F* statistic? What is the alternative hypothesis?
   c. What is the 5% critical value for this test using Table B-2 on page 521 of the text?
   d. What is the outcome of the test based on comparing the calculated *F* statistic to the critical value? What does that mean? Does this concur with the *p* value reported on the second highlighted line?

```
. test satv100 satm100

 ( 1)  satv100 = 0
 ( 2)  satm100 = 0

       F(  2,   609) =    5.26
            Prob > F =    0.0055
```

2. After running the regression, I performed the test command above.

   a. What are the null hypothesis and alternative hypothesis?
   b. What is the 5% critical value (from Table B-2)?
   c. Interpret all of the numbers in the last two lines.
   d. What is your conclusion?