Command	Explanation	Abbreviation
correlate y x	gives correlation of x and y	corr
regression y x	regresses y on x	reg
predict yhat	creates vector of predicted values $yhat$ after reg	
predict e, resid	creates vector of residuals e after reg	
test x = c	tests $H_0 : x = c$ against $H_a : x \neq c$	

The following regresses the price of an automobile on its mileage-per-gallon using heteroskedasticity robust standard errors.

```
. sysuse auto
(1978 Automobile Data)

. regress price mpg, vce(robust)

------------------------------------------------------------------------------
             |              Robust
       price |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         mpg |  -238.8943   57.47701    -4.16   0.000    -353.4727   -124.316
       _cons |   11253.06   1376.393     8.18   0.000     8509.272   13996.85
------------------------------------------------------------------------------
```

You test the claim that one more mile per gallon is associated with a lower price by $400. Specifically, $H_0 : \beta_2 = -400$ against $H_a : \beta_2 \neq -400$.

```
. test mpg = -400

 ( 1)  mpg = -400

       F(  1,    72) =    7.86
            Prob > F =    0.0065
```

$F(1,72) = t^2$ when there is only one regressor, so the t-statistic is $\sqrt{7.86} = 2.803$, which can be confirmed by manually calculating

$$t = \frac{-238.8943 - (-400)}{57.47701} = 2.803.$$

The p-value shown is 0.0065, which can be confirmed with di 2*ttail(72,2.803), so reject the null hypothesis at any conventional significance level.

Note that the residual has mean zero, as it always will.

```
. predict e, resid

. sum e

    Variable |        Obs        Mean    Std. Dev.       Min        Max
-------------+--------------------------------------------------------
           e |         74   -6.29e-06    2605.621   -3184.174   9669.721
```