

Command	Explanation	Abbreviation
<code>scalar a = 5</code>	defines scalar $a = 5$	di
<code>scalar list</code>	lists scalars	
<code>ttail(df,c)</code>	gives $\Pr(T > c)$ for $T \sim T(df)$	
<code>invttail(df,p)</code>	gives the value t^* such that $\Pr(T > t^*) = p$	
<code>display a</code>	displays value of scalar a or <code>ttail</code> or etc	
<code>ttest x = c</code>	performs t-test for $H_0 : \mu = c$ with variable x	
<code>mean x</code>	estimates mean of x (gives confidence intervals)	

Summary Statistics and Scalars

```
sum x, detail
scalar xbar = r(mean)           xbar equals mean of  $x$ 
scalar sd = r(sd)              sd equals standard deviation of  $x$ 
scalar n = r(N)                 $n$  equals number of observations for  $x$ 
scalar t = invttail(n-1,0.025)  $t$  equals 2-sided 5% critical value with  $df = n - 1$ 
```

Calculating Confidence Intervals

```
scalar CI_lb = xbar - invttail(n-1,0.025)*sd/sqrt(n)
scalar CI_ub = xbar + invttail(n-1,0.025)*sd/sqrt(n)
di CI_lb, CI_ub
```

Or use `mean x`. You can change the level to, say, 90%, with command `mean x, level(90)`.

Hypothesis Testing

```
di invttail(n-1,0.025)           gives 5% critical value for two-sided test
di 2*ttail(n-1, 2.15)           gives two-sided  $p$ -value for  $t$ -statistic 2.15
```

```
. ttest price = 230000
```

```
One-sample t test
```

Variable	Obs	Mean	Std. Err.	Std. Dev.	[95% Conf. Interval]	
price	29	253910.3	6943.281	37390.71	239687.7	268133

```
mean = mean(price)           t = 3.4437
Ho: mean = 230000           degrees of freedom = 28
```

```
Ha: mean < 230000           Ha: mean != 230000           Ha: mean > 230000
Pr(T < t) = 0.9991           Pr(|T| > |t|) = 0.0018           Pr(T > t) = 0.0009
```

Figure 1: The number $\Pr(|T| > |t|) = 0.0018$ is the two-sided p -value for null $H_0 : price = 230000$.