

Exercise 5C.1

You are interested in studying if systolic blood pressure in older males varies after sitting for 30 minutes. You sample 20 men and collect their blood pressures before (bp_before) and after (bp_after) sitting for 30 minutes. These data are summarized in the Stata output below. Use this information to test your hypothesis (that BP is different before and after sitting).

```
. generate diff = bp_after - bp_before
```

```
. summarize
```

Variable	Obs	Mean	Std. Dev.	Min	Max
bp_before	20	165.3	8.844267	147	180
bp_after	20	162.85	11.63604	146	185
diff	20	-2.45	14.32875	-29	29

Exercise 5C.2

Do piano lessons improve the spacial-temporal reasoning of preschool children? A study designed to test this hypothesis measured the spacial-temporal reasoning of 30 preschool children before and after 6 months of piano lessons. The average change in reasoning scores was +3.83 with a standard deviation of 3.0. Test the hypothesis that there was a change in reasoning. Will the 95% CI contain the value 0?