differences between volumes for the first-born and the second-born twins. What does the confidence interval suggest?

First Born	1005	1035	1281	1051	1034	1079	1104	1439	1029	1160
Second Born	963	1027	1272	1079	1070	1173	1067	1347	1100	1204

13. Speaking Couples Listed below are the numbers of words spoken in a day by each member of six different couples. The data are randomly selected from the first two columns in Data Set 17 from Appendix B. Use a 0.05 significance level to test the claim that among couples, males speak more words in a day than females.

Male	5638	21,319	17,572	26,429	46,978	25,835
Female	5198	11,661	19,624	13,397	31,553	18,667

14. Is Blood Pressure the Same for Both Arms? Listed below are systolic blood pressure measurements (mm Hg) taken from the right and left arms of the same woman (based on data from "Consistency of Blood Pressure Differences Between the Left and Right Arms," by Eguchi, et al., *Archives of Internal Medicine,* Vol. 167). Use a 0.01 significance level to test for a difference between the measurements from the two arms. What do you conclude?

Right arm	102	101	94	79	79
Left arm	175	169	182	146	144

15. Is Friday the 13th Unlucky? Researchers collected data on the numbers of hospital admissions resulting from motor vehicle crashes, and results are given below for Fridays on the 6th of a month and Fridays on the following 13th of the same month (based on data from "Is Friday the 13th Bad for Your Health?" by Scanlon, et al., *British Medical Journal,* Vol. 307, as listed in the *Data and Story Line* online resource of data sets). Construct a 95% confidence interval estimate of the mean of the population of differences between hospital admissions on days that are Friday the 6th of a month and days that are Friday the 13th of a month. Use the confidence interval to test the claim that when the 13th day of a month falls on a Friday, the numbers of hospital admissions from motor vehicle crashes are not affected.

Friday the 6th	9	6	11	11	3	5
Friday the 13th	13	12	14	10	4	12

16. Self-Reported and Measured Male Heights As part of the National Health and Nutrition Examination Survey, the Department of Health and Human Services obtained self-reported heights and measured heights for males aged 12–16. All measurement are in inches. Listed below are sample results. Construct a 99% confidence interval estimate of the mean difference between reported heights and measured heights. Interpret the resulting confidence interval, and comment on the implications of whether the confidence interval limits contain 0.

Reported Height	68	71	63	70	71	60	65	64	54	63	66	72
Measured Height	67.9	69.9	64.9	68.3	70.3	60.6	64.5	67.0	55.6	74.2	65.0	70.8

17. Harry Potter The Harry Potter books and movies grossed huge sums of money. The table below lists the amounts grossed (in millions of dollars) during the first few days of release of the movies *Harry Potter and the Half-Blood Prince* and *Harry Potter and the Order of the Phoenix.* Use a 0.05 significance level to test the claim that *Harry Potter and the Half-Blood Prince* did better at the box office. Apart from this hypothesis test, what is a better way to judge the validity of the claim?

Day of Release	1	2	3	4	5	6	7	8	9	10
Phoenix	44.2	18.4	25.8	28.3	23.0	10.4	9.1	8.4	7.6	10.2
Prince	58.2	22.0	26.8	29.2	21.8	9.9	9.5	7.5	6.9	9.3