

17. Town Courts Listed below are amounts of court fine revenue and salaries paid to the town justices (based on data from the *Poughkeepsie Journal*). All amounts are in thousands of dollars, and all of the towns are in Dutchess County, New York. Is there sufficient evidence to conclude that there is a linear correlation between court incomes and justice salaries? Based on the results, does it appear that justices might profit by levying larger fines?

Court Income	65	404	1567	1131	272	252	111	154	32
Justice Salary	30	44	92	56	46	61	25	26	18

18. Auction Bids The author is a member of the board of directors of a nonprofit organization that held a fund-raising auction. He recorded the opening bids suggested by the auctioneer and the final winning bids for several items. The amounts are listed below. Is there sufficient evidence to conclude that there is a linear correlation between the opening bids suggested by the auctioneer and the final winning bids?

Opening Bid	1500	500	500	400	300
Winning Bid	650	175	125	275	125

19. Galaxy Distances The table below lists measured amounts of redshift and the distances (billions of light-years) to randomly selected clusters of galaxies (based on data from *The Cosmic Perspective* by Bennett et al., Benjamin Cummings). Is there sufficient evidence to conclude that there is a linear correlation between amounts of redshift and distances to clusters of galaxies? What do the results suggest about the relationship between the two variables?

Redshift	0.0233	0.0539	0.0718	0.0395	0.0438	0.0103
Distance	0.32	0.75	1.00	0.55	0.61	0.14

20. Diamond Prices The table below lists weights (carats) and prices (dollars) of randomly selected diamonds. All of the diamonds are round with ratings of “very good” cut, they all have a color rating of F (“slight color”), and a clarity rating of VSI (“very slightly included”). The values are based on data from the retailer Blue Nile. For diamonds of the type described, is there sufficient evidence to conclude that there is a linear correlation between weights and prices? Do the results also apply to other types of diamonds, such as those with different color and clarity ratings?

Weight	0.3	0.4	0.5	0.5	1.0	0.7
Price	510	1151	1343	1410	5669	2277

21. Measuring Seals from Photos Listed below are the overhead widths (in cm) of seals measured from photographs and the weights (in kg) of the seals (based on “Mass Estimation of Weddell Seals Using Techniques of Photogrammetry,” by R. Garrott of Montana State University). The purpose of the study was to determine if weights of seals could be determined from overhead photographs. Is there sufficient evidence to conclude that there is a linear correlation between overhead widths of seals from photographs and the weights of the seals?

Overhead Width	7.2	7.4	9.8	9.4	8.8	8.4
Weight	116	154	245	202	200	191