

Fitting Linear Equations to Data – Mean Line of Best Fit

EXAMPLE 1: We start with an attempt to construct a linear demand function. Suppose that your market research of real estate investments reveals the following sales figures for new homes of different prices over the past year.

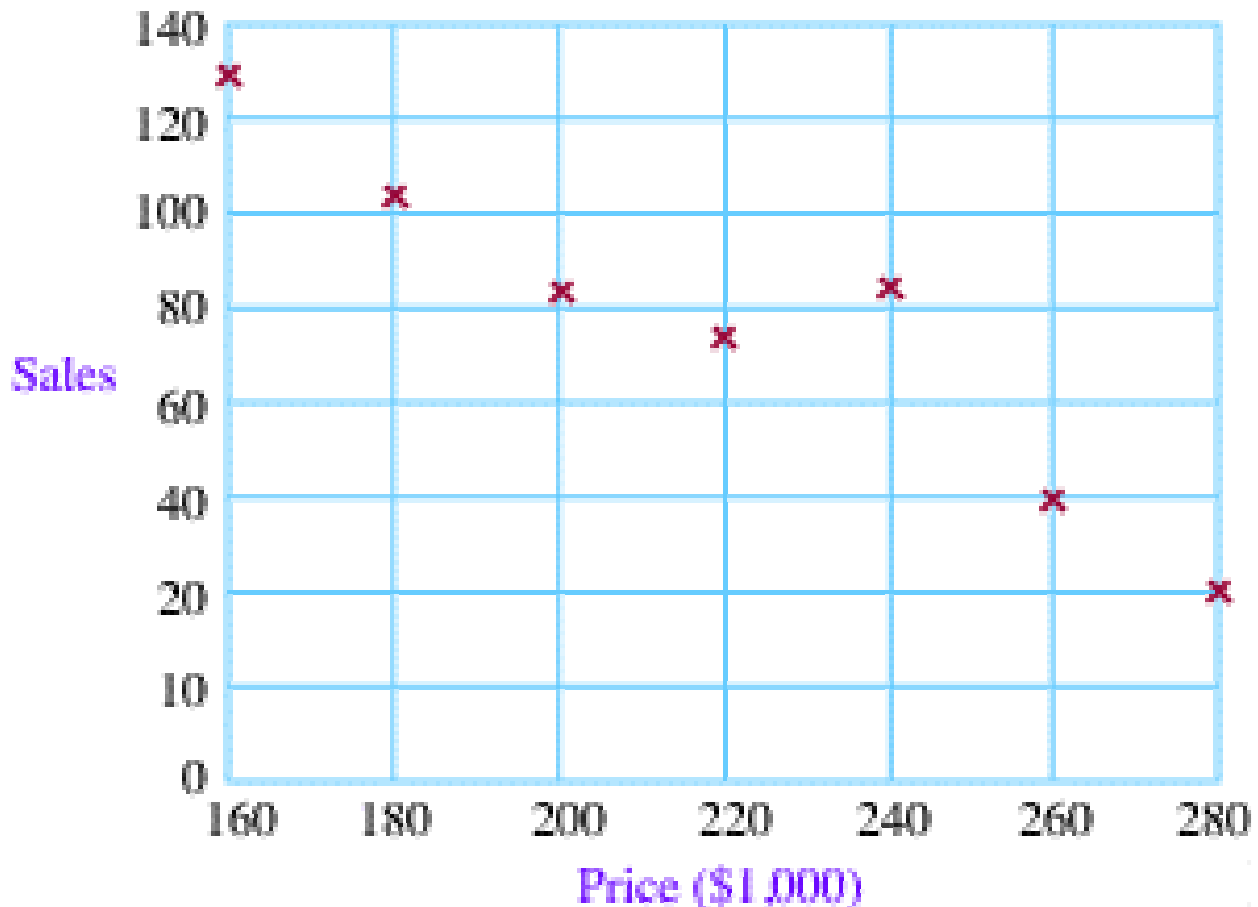
Price (Thousands of \$)	\$160	\$180	\$200	\$220	\$240	\$260	\$280
Sales of New Homes This Year	126	103	82	75	82	40	20

We would like to use these data to construct a demand function for the real estate market. (Recall that a demand function gives demand y , measured here by annual sales, as a function of unit price, x .) Here is a plot of y versus x .

So let's first find the mean (average) of the x co-ordinates (price) as well as the mean (average) of the Sales. Plot this point on the grid below.

Now carefully draw a "line of best fit" that goes through the mean point.

Find 2 other key points on this line and determine the slope and set up the $y = mx + b$ equation that will now serve to "model" the data.

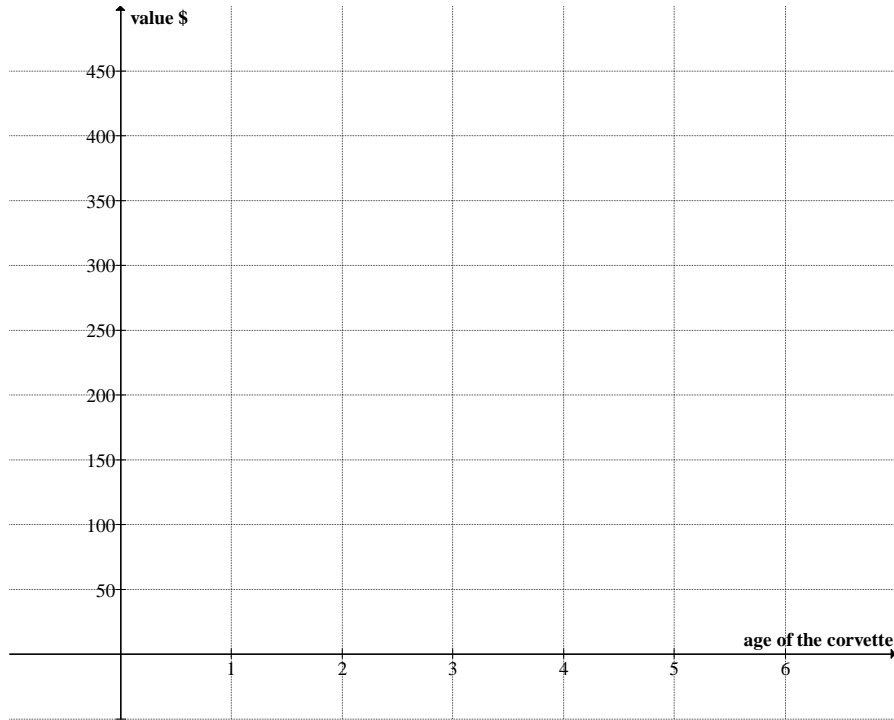


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EXAMPLE 1: Ten Corvettes between 1 and 6 years old were randomly selected from the classified ads of a local newspaper. The following data were obtained, where x denotes age, in years, and y denotes price, in hundreds of dollars

X (age)	6	6	6	2	2	5	4	5	1	4
Y (Price)	270	260	275	405	364	295	335	308	405	305

b) Graph the data.



c) Determine the median point.

d) Draw the median line of best fit.

e) Calculate the equation of the median line of best fit

f) Describe the apparent relationship between age and price for Corvettes.

g) What does the slope of the regression line represent in terms of Corvette prices?

h) Use the regression equation to predict the price of a 2-year-old Corvette; a 3-year-old Corvette.