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Bivariate Project

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Fitted Line Plot

Regression analysis: GPA vs Activities

Statistics

Variable	N	N*	Mean	SE Mean	StDev	CoefVar	Minimum	Q1	Median	Q3	Maximum
gpa	31	0	3.709	0.103	0.576	15.53	2.500	3.411	3.780	4.143	5.000
activities	31	0	3.129	0.320	1.784	57.02	0.000	2.000	3.000	4.000	9.000

Regression Equation

activities = -4.98 + 2.186 gpa

Model Summary

S	R-sq	R-sq(adj)
1.28542	49.82%	48.09%

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	47.567	47.5672	28.79	0.000
gpa	1	47.567	47.5672	28.79	0.000
Error	29	47.917	1.6523		
Lack-of-Fit	27	46.917	1.7377	3.48	0.248
Pure Error	2	1.000	0.5000		
Total	30	95.484			

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	-4.98	1.53	-3.26	0.003	
gpa	2.186	0.408	5.37	0.000	1.00

Fits and Diagnostics for Unusual Observations

Obs	activities	Fit	Resid	Std Resid	
6	6.000	2.890	3.110	2.46	R
10	5.000	5.951	-0.951	-0.83	X
15	9.000	4.420	4.580	3.69	R

R Large residual
X Unusual X

_____ When I was thinking about what to research for this project, I tried to think of something that may have a pretty good correlation. After I gave thought to this, I decided to research a relationship between an NOHS student's GPA, and the amount of activities they participate in, such as jobs, volunteer work, clubs, and sports.

I collected my own data, and I asked random people in NOHS their GPA and the amount of activities they do. My R was 0.7058, which is a relatively strong correlation with my data, and my R sq. was 49.82 percent. My sample was the students I asked, and the population was all of the students at NOHS.

If I were to go back and recollect data, I would ask more students, to gain more data, strengthening the credibility of my research. I did find that there was a good, positive correlation between a student's GPA and the amount of activities they partake in.

Data:

GPA	Activities
4.5	5
3.498	3
3.532	3
2.6	0
2.6	1
3.6	6
3.8	3
4.05	2
3.9	2
5.0	5
4.209	4
3.411	3
3.7	3
3.78	3
4.3	9
3.8	2
4.2	4
2.5	0
4.143	4
3.5	2
4.1	2
3.26	3
3.67	4
4.021	4
3.89	3

4.23	5
2.78	1
3.19	2
3.36	2
4.25	4
3.621	3