



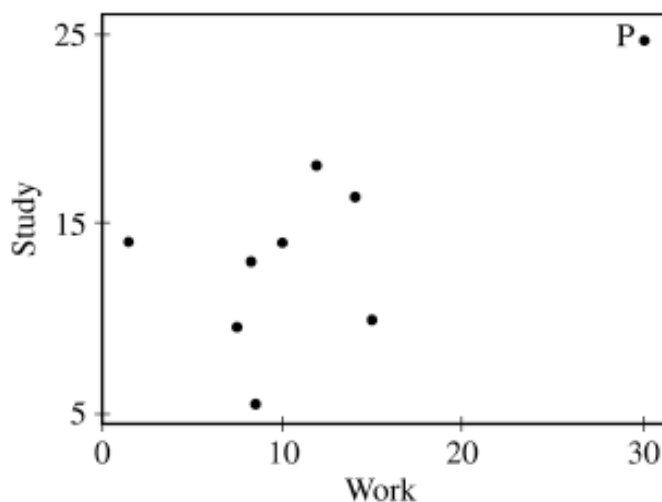
“FRAPPY” {Free Response AP Problem...Yay!}

The following problem is taken from an actual Advanced Placement Statistics Examination. Your task is to generate a complete, concise statistical response in 15 minutes. You will be graded based on the AP rubric and will earn a score of 0-4. After grading, keep this problem in your binder for your AP Exam preparation.

A simple random sample of 9 students was selected from a large university. Each of these students reported the number of hours he or she had allocated to studying and the number of hours allocated to work each week. A least squares linear regression was performed and part of the resulting computer output is shown below.

Predictor	Coef	StDev	T	P
Constant	8.107	2.731	2.97	0.021
Work	0.4919	0.1950	2.52	0.040
S = 4.349 R-Sq = 47.6% R-Sq (adj) = 40.1%				

The scatterplot below displays the data that were collected from the 9 students.



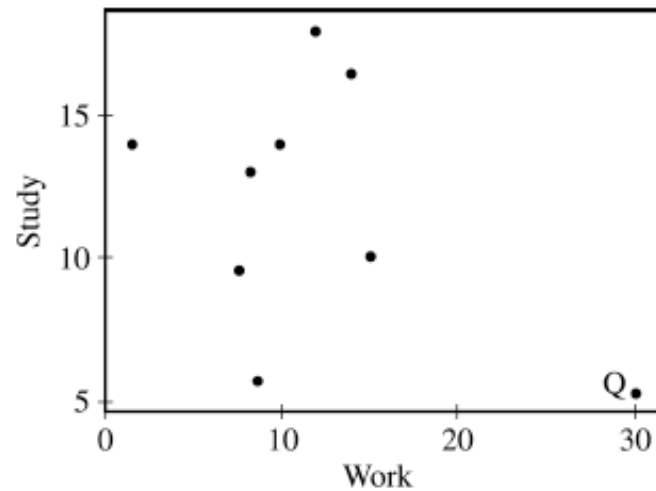
(a) After point P, labeled on the graph on the previous page, was removed from the data, a second linear regression was performed and the computer output is shown below.

Predictor	Coef	StDev	T	P
Constant	11.123	3.986	2.79	0.032
Work	0.1500	0.3834	0.39	0.709
S = 4.327 R-Sq = 2.5% R-Sq (adj) = 0.0%				

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Does point P exercise a large influence on the regression line? Explain.

(b) The researcher who conducted the study discovered that the number of hours spent studying reported by the student represented by P was recorded incorrectly. The corrected data point for this student is represented by the letter Q in the scatterplot below.



Explain how the least squares regression line for the corrected data (in this part) would differ from the least squares regression line for the original data.

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Total: __/4