

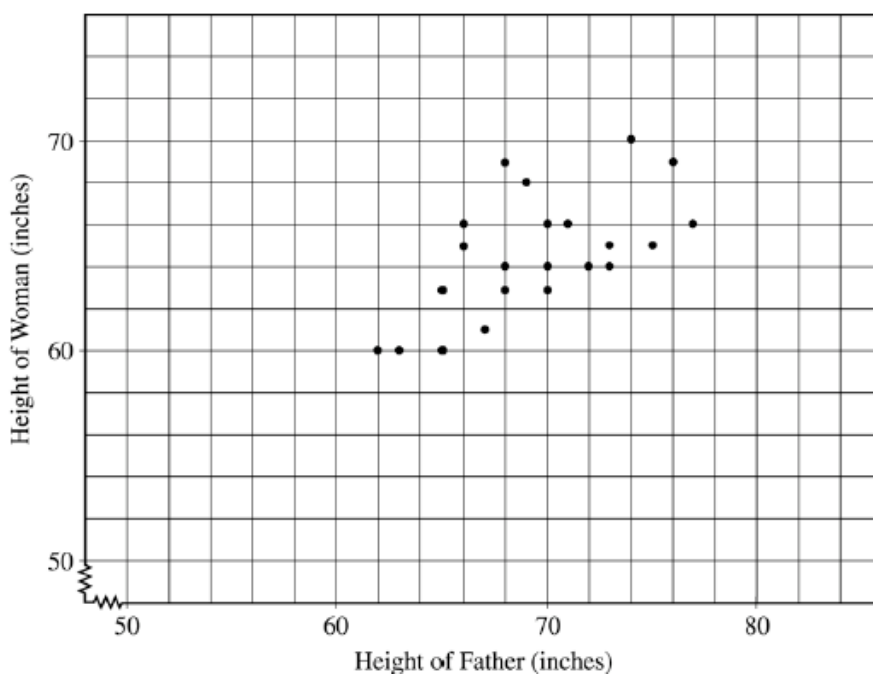


“FRAPPY”

{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.

Each of 25 adult women was asked to provide her own height (y), in inches, and the height (x), in inches, of her father. The scatterplot below displays the results. Only 22 of the 25 pairs are distinguishable because some of the (x, y) pairs were the same. The equation of the least squares regression line is $\hat{y} = 35.1 + 0.427x$.



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Scoring:

(a) Draw the least squares regression line on the scatterplot above.

(b) One father's height was $x = 67$ inches and his daughter's height was $y = 61$ inches. Circle the point on the scatterplot above that represents this pair and draw the segment on the scatterplot that corresponds to the residual for it. Give a numerical value for the residual.

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(c) Suppose the point $x = 84, y = 71$ is added to the data set. Would the slope of the least squares regression line increase, decrease, or remain about the same? Explain.

(Note: No calculations are necessary to answer this questions.)

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Would the correlation increase, decrease, or remain about the same? Explain.

(Note: No calculations are necessary to answer this question.)

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Total: __/4