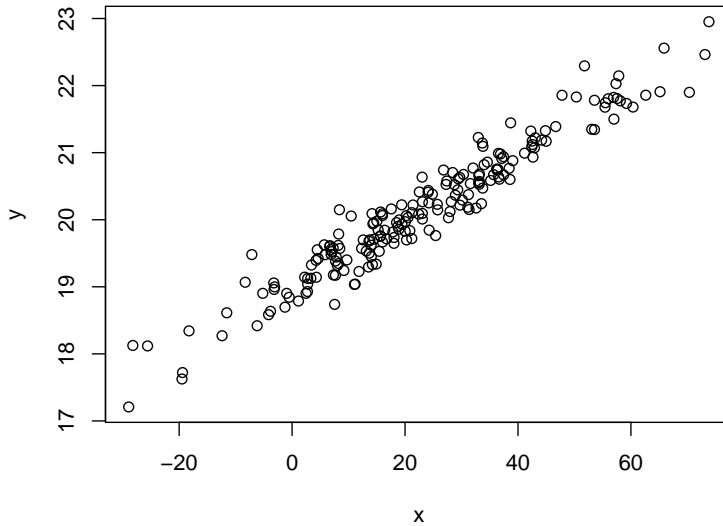


1. **Problem**

The following figure shows a scatterplot. Which of the following statements are correct?



- (a) The absolute value of the correlation coefficient is at most 0.8.
- (b) The standard deviation of X is at least 6.
- (c) For $X = 17.1$, Y can be expected to be about 19.9 .
- (d) The scatterplot is standardized.
- (e) The mean of Y is at least 30.

Solution

- (a) False. A strong association between the variables is given in the scatterplot. Hence the absolute value of the correlation coefficient is close to 1 and therefore larger than 0.8.
- (b) True. The standard deviation of X is about equal to 20 and is therefore larger than 6.
- (c) True. The regression line at $X = 17.1$ implies a value of about $Y = 19.9$.
- (d) False. The scatterplot is not standardized, because X and Y do not both have mean 0 and variance 1.
- (e) False. The mean of Y is about equal to 20 and hence is smaller than 30.