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.