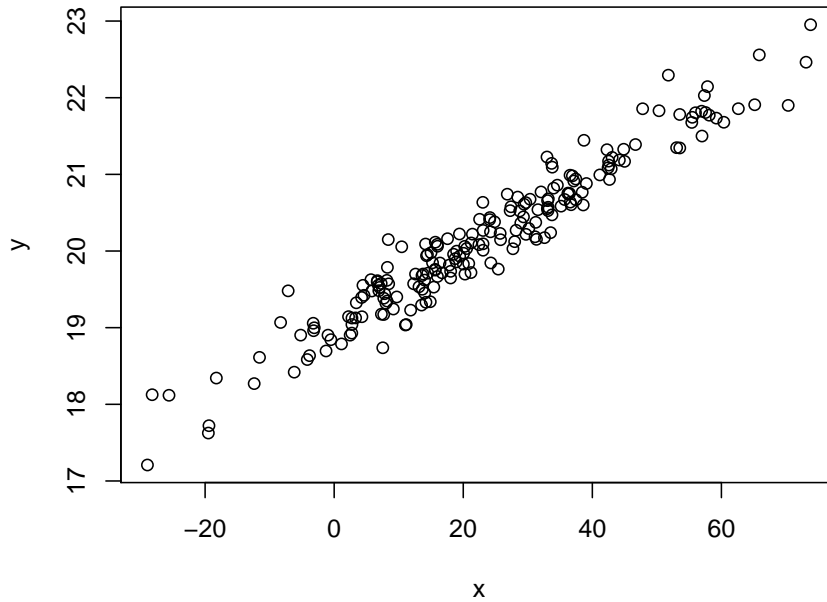


1. **Problem**

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.