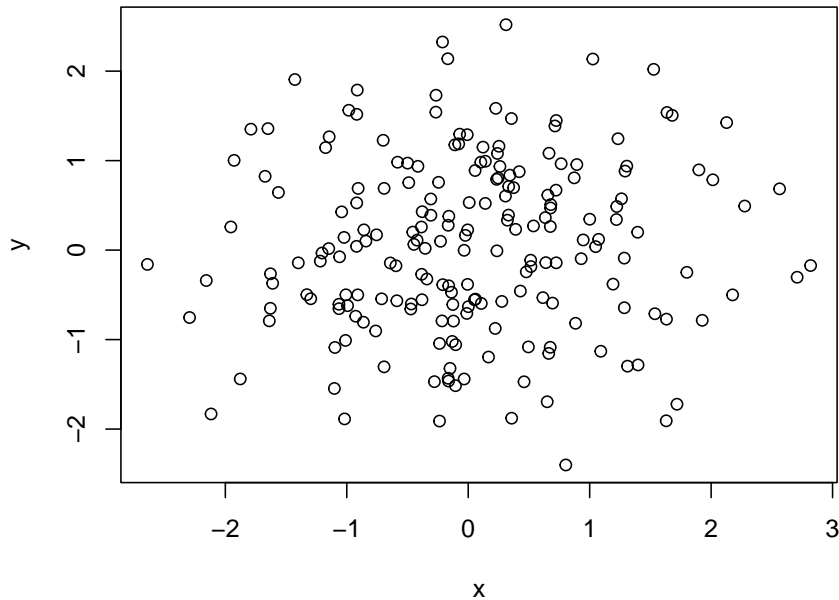


**1. Problem**

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



- (a) The absolute value of the correlation coefficient is at least 0.8.
- (b) The slope of the regression line is about 1.
- (c) The standard deviation of  $Y$  is at least 6.
- (d) For  $X = 0.3$ ,  $Y$  can be expected to be about 0.
- (e) The mean of  $X$  is at most 5.

**Solution**

- (a) False. No association between the variables is observed in the scatterplot. This implies a correlation coefficient close to 0.
- (b) False. The slope of the regression line is given by  $r \cdot s_y/s_x$  and hence not about equal to 1.
- (c) False. The standard deviation of  $Y$  is about equal to 1 and is therefore smaller than 6.
- (d) True. The regression line at  $X = 0.3$  implies a value of about  $Y = 0$ .
- (e) True. The mean of  $X$  is about equal to 0 and hence is smaller than 5.