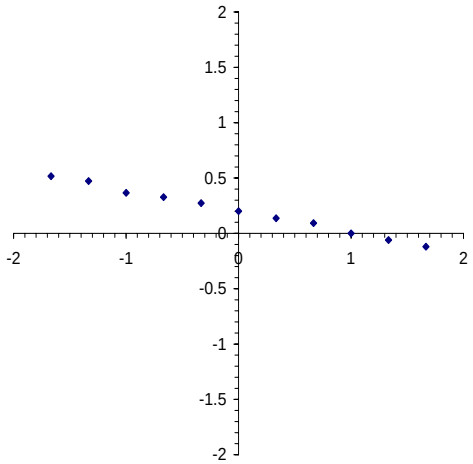

Figure 2: Scatter plot for question 5

(i) The distribution has positive skew.

(ii) The distribution has negative skew.

(iii) The distribution has high kurtosis.

(iv) The distribution conforms to a normal distribution.

5. Consider the data in the scatter plot of Figure 2. The correlation between the X and Y values in the figure is closest to

(i) 0.2

(ii) -0.2

(iii) 1

(iv) -1

(v) 0

6. The observations $X_1, \ldots, X_n$ have a mean of 50 and a standard deviation of 7. Which of the following statements is guaranteed to be true according to Chebyshev's rule? (Write "True" or "False" next to each.)

(i) At least 75% of the observations are between 36 and 64 _____

(ii) At least 80% of the observations are between 34 and 66 _____

(iii) At least 88.9% of the observations are between 31 and 73 _____

(iv) Fewer than 15% of the observations are below 30 _____

7. Suppose the observations $X_1, X_2, \ldots, X_n$ have mean 10. Suppose that exactly 75% of the observations are less than or equal to 15. According to Chebyshev's rule, what is the smallest possible value of the population standard deviation of these observations?