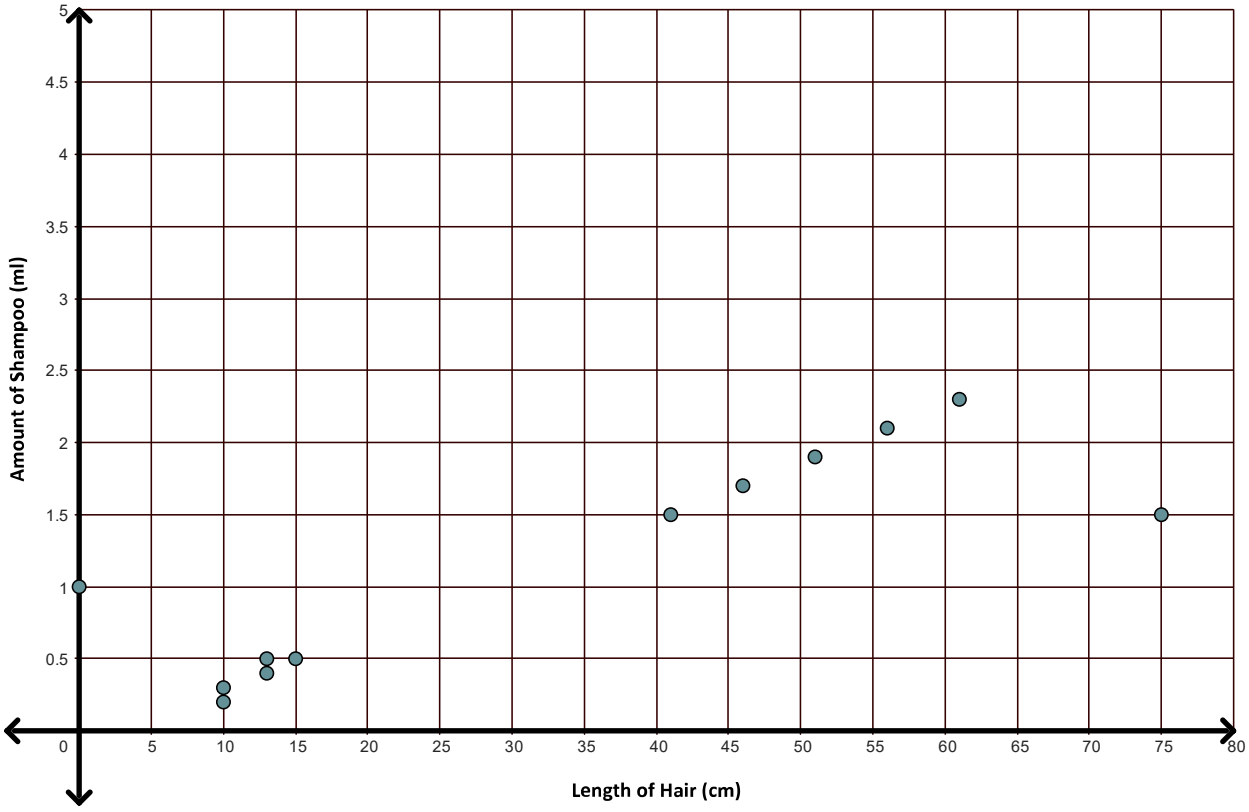
BEAUTY TRENDS (SAMPLE RESPONSES)

A local beauty salon collected data on the length of customer's hair x, in centimeters, and the amount of shampoo used y, in milliliters. A scatter plot of the amount of shampoo used and hair length revealed a relationship between the two variables, described as strong, positive, and linear. The data collected is in the table below.

Length of Hair (cm)	0	10	10	13	13	15	41	46	51	56	61	75
Amount of Shampoo (ml)	1.1	0.3	0.2	0.4	0.5	0.5	1.5	1.7	1.9	2.1	2.3	1.5

(a) Construct a graph of the data that could be used to investigate the appropriateness of a linear relationship.



(b) Based on your graph, do you think "linear" is an appropriate description?

The scatter plot displays a linear relationship because the points appear to follow a linear trend closely.

(c) Interpret the correlation coefficient value, $r = 0.849$, in the context of the problem. Use what you learned today to describe the scatter plot. Be sure to explain your reasoning.

$r = 0.849$ means that there is a strong, positive, linear relationship between the length of customers' hair and the amount of shampoo used. Since $r > 0$, we know there is a positive relationship. Because $r > 0.8$, we can say there is a strong relationship; the graph supports this as the points appear to follow a line closely.