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| TSW |
| • Construct a scatter plot given two sets of quantitative data. |
| • Identify patterns of association between two sets of quantitative data. |
| • Identify outliers in a scatter plot |

Vocabulary-

What is an outlier?

Example 3   **Identify outliers in a scatter plot.** ─────────────

The scatter plot displays bivariate data on the time, x hours, students spent studying for a history exam and the corresponding scores, y, earned on the exam.
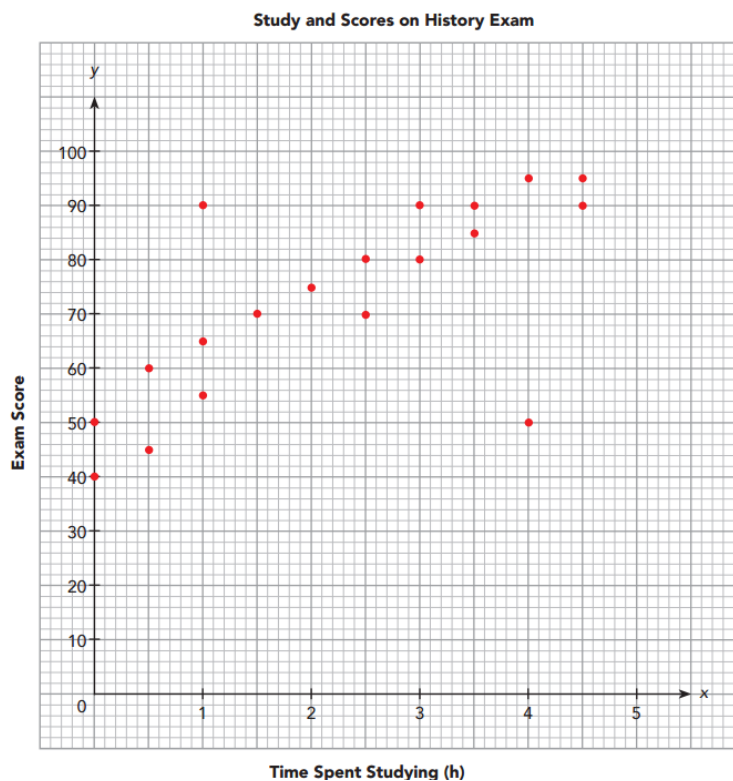
Study and Scores on History Exam

Time Spent Studying (h)

a)   Identify any outlier(s).

b)   Describe the outlier(s) in this context.

c)   Describe the meaning of the association between the two variables in this context. Validate the outliers as being very different from the rest of the data points.

Guided Practice

Use graph paper. Solve.

3 Dan is investigating the effect of the amount of water, x, given to tomato seedlings on their growth. He waters each of the 22 plants with a given amount of water daily. He records their height, y, at the end of two weeks. His data are shown below.

Water (fl oz)	4	24	20	12	16	4	20	8	20	28	12
Height (in.)	2.2	11.2	8.8	5.4	8.8	2.4	9.6	3.0	9.2	4.8	6.2

Water (fl oz)	8	4	12	12	28	24	24	8	16	16	28
Height (in.)	4.0	1.6	5.0	4.8	12.4	9.6	10.4	3.2	7.8	8.0	13.2

a) Construct a scatter plot for these data. Use 1 centimeter on the horizontal axis to represent 4 fluid ounces. Use 1 centimeter on the vertical axis to represent 1 inch. Identify any outlier(s).

An outlier appears to be located at (_?_, _?_).

b) Describe the outlier(s) in this context.

The outlier represents _?_ and _?_ after two weeks.

c) Describe the meaning of the association between the two variables in this context. Validate the outliers as being very different from the rest of the data points.

The _?_, _?_, and _?_ association indicates that tomato seedlings that are given more water daily experience _?_ growth over the two weeks. The general trend shows that seedlings that are given 28 fluid ounces of water daily generally grew about _?_ inches, but the outlier represents a seedling that grew only _?_ inches with _?_ fluid ounces of water daily.