

Relations Review

- 1) The marks obtained on a test were compared to the amount of time they studied. The results are shown in the table to the right.
 - a) Create a scatter plot of the data.
 - b) Is there any correlation between study time and marks? Explain.
 - c) If there is a relationship, draw a line/curve of best fit.
 - d) If you were able to draw a line/curve of best fit, predict how long a student who received a mark of 15 studied.
 - e) If you were able to draw a line/curve of best fit, predict the mark of a student who studied for 3 hours. Is this an example of interpolation or extrapolation?

Study time (h)	Marks (out of 20)
0	8, 10
0.5	10, 11, 12
1.0	12, 13, 14
1.5	12, 15, 16
2.0	16, 18

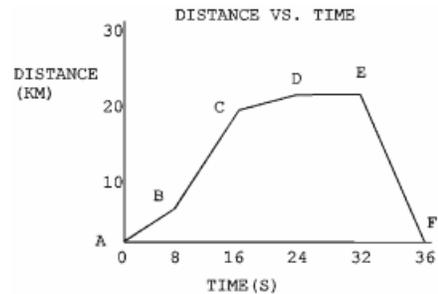
- 2) Explain the difference between positive and negative correlation. Give an example of a relationship that would represent each situation and sketch a sample scatter plot for each.
- 3) Sam charges a \$5 base fee plus \$20/h to fix jewellery. In this relationship,
 - a) what is the dependent variable?
 - b) is it an example of partial or direct variation?
 - c) create an algebraic model.

- 4) Tree's diameter is often measured and compared to the age of the tree. The table shows the diameter of several spruce trees at various ages.
 - a) Create a scatter plot for the data.
 - b) If there is a relationship, draw a regression line/curve.
 - c) Create a question that could be answered with your scatter plot.

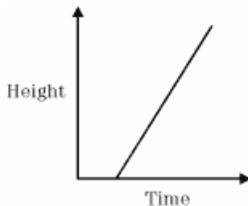
Age (years)	Diameter (cm)
13	6.0
20	12.5
28	18
42	22
54	30
63	40
83	44
88	47

- 5) The graph on the right models the movement of an object over time.
 - a) During which interval was the object traveling the fastest? Justify your answer.
 - b) During which interval was the object traveling toward the starting point? Justify your answer.
 - c) During which interval was the object almost at rest? Justify your answer.

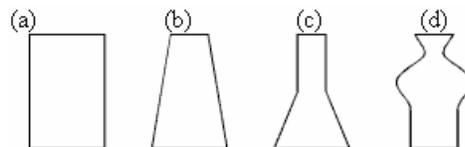
Note: slope = speed



- 6) The graph below models how the height of water in a container being filled changes over time.



Select the container that is probably being filled.



- 7) Which of these describe a relationship? If there is a relationship identify the dependent and independent variables.
 - a) The distance Sarah swims and the time she takes
 - b) The outdoor temperature and the amount of clothing people wear
 - c) The temperature in Vancouver and the temperature in Toronto