



Analysing scatter plots (i.e. bivariate) - TARSOG

Mana Maths

Te reo Māori terms



marara

scatter/dispersed

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hononga

relationship

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kauwhata

graph

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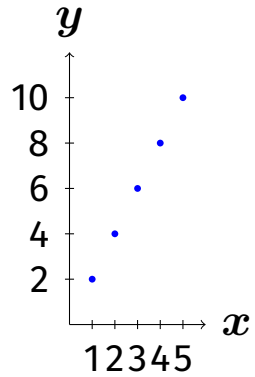
tauirā

model

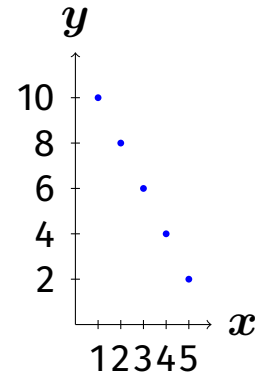
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Analysing scatter plots (i.e. bivariate) - TARSOG — Foundation

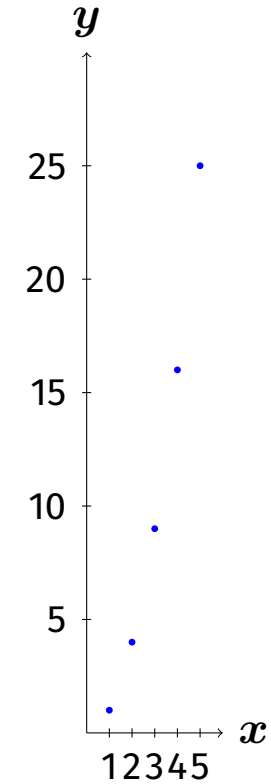
1. Describe the scatter plot using TARSOG.



2. Describe the scatter plot using TARSOG.



3. Describe the scatter plot using TARSOG.



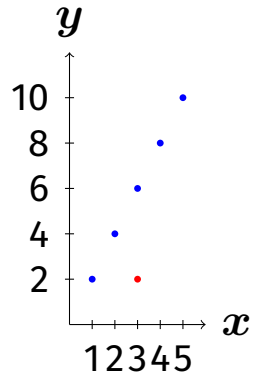
- 4.** Identify the trend (linear or non-linear) for each plot above.
- 5.** Identify the association (positive or negative) for each plot above.
- 6.** Identify the relationship strength (weak, moderate, strong) for each plot above.
- 7.** Identify the scatter (constant or non-constant) for each plot above.
- 8.** Identify any outliers in the plots above.
- 9.** Identify any groupings in the plots above.
- 10.** What does TARSOG stand for?
- 11.** Match each letter of TARSOG with its meaning.
- 12.** Given a scatter plot with a positive linear trend and strong relationship, describe what that means.

13. Given a scatter plot with a negative linear trend and moderate relationship, describe what that means.

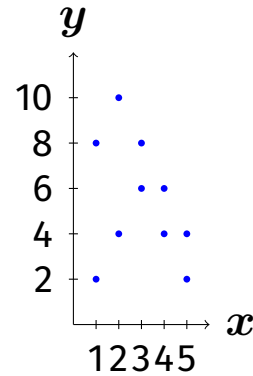
14. Given a scatter plot with a non-linear trend and weak relationship, describe what that means.

Analysing scatter plots (i.e. bivariate) - TARSOG — Proficient

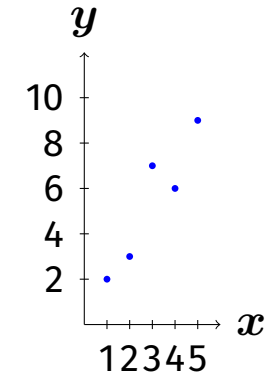
1. Describe the scatter plot using TARSOG.



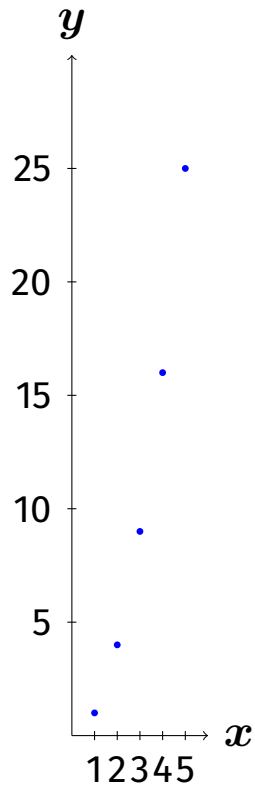
2. Describe the scatter plot using TARSOG.



3. Describe the scatter plot using TARSOG.



4. Describe the scatter plot using TARSOG.



5. For each plot, identify the trend, association, relationship strength, scatter, outliers, and groupings.

6. Which plot shows a clear outlier? Describe its effect on the trend.

7. Which plot shows two distinct groupings? Describe the groupings.

8. Which plot shows non-constant scatter? Explain what that means.

9. Which plot shows a non-linear trend? Describe the pattern.

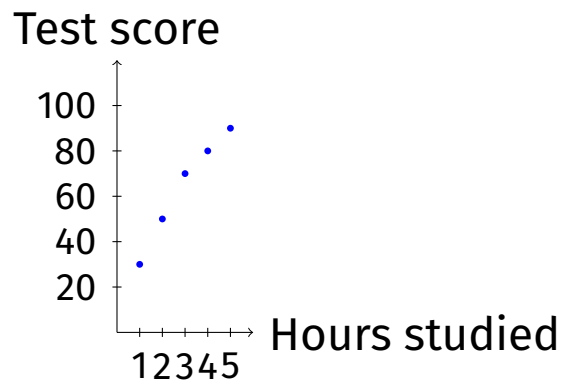
10. Explain how you would determine the strength of a relationship from a scatter plot.

11. Explain the difference between association and trend.

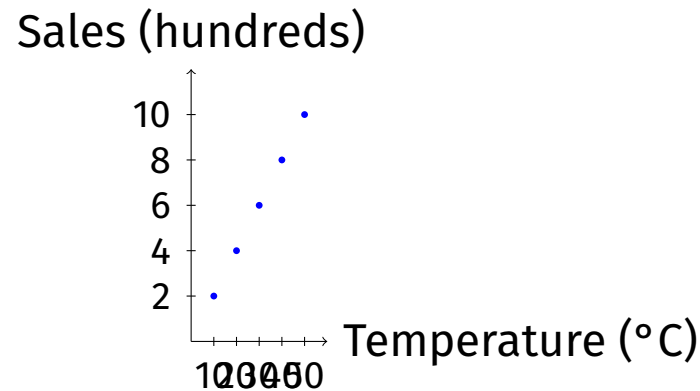
12. Explain the difference between scatter and grouping.

Analysing scatter plots (i.e. bivariate) - TARSOG — Excellence

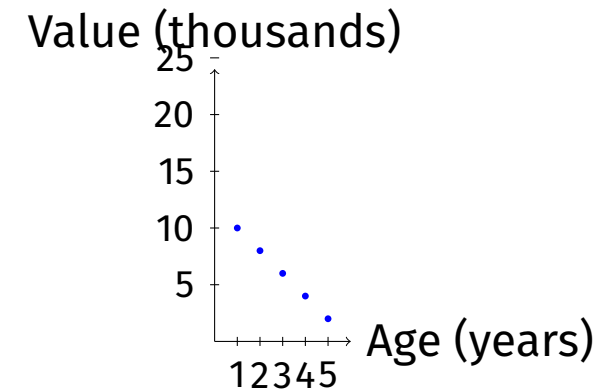
1. The scatter plot shows the relationship between hours studied and test score (out of 100). Describe the relationship using TARSOG.



2. The scatter plot shows the relationship between temperature ($^{\circ}\text{C}$) and ice cream sales. Describe the relationship using TARSOG.



3. The scatter plot shows the relationship between age of a car and its resale value. Describe the relationship using TARSOG.



- 4.** Write a statistical paragraph for each of the three scatter plots above, using TARSOG to describe the relationship.
- 5.** For the first scatter plot, predict the test score for a student who studied 6 hours. Explain your reasoning.
- 6.** For the second scatter plot, predict ice cream sales on a 25°C day. Explain your reasoning.
- 7.** For the third scatter plot, predict the resale value of a 6-year-old car. Explain your reasoning.
- 8.** Identify any potential outliers in the scatter plots above and discuss how they might affect the interpretation.
- 9.** Identify any groupings in the scatter plots above and suggest possible reasons for the groupings.
- 10.** Discuss whether the relationships shown are likely to be causal or merely correlational.
- 11.** Explain how you could collect data to create a scatter plot for a given bivariate relationship.
- 12.** Explain the limitations of using scatter plots to analyse bivariate relationships.

- 13.** Describe a real-world situation where a scatter plot would be useful, and what TARSOG aspects you would look for.
- 14.** Compare and contrast scatter plots with other statistical displays (e.g., time series graphs, box plots).
- 15.** Explain the importance of considering context when interpreting scatter plots.
- 16.** Create a sketch of a scatter plot that shows a strong positive linear relationship with constant scatter and no outliers. Label axes appropriately.