

Trends, Interpolation and Extrapolation

Interpolation

Predicting a value inside of your data set.

Extrapolation

Predicting a value outside of your data set.

The following scatter plot shows the average temperature of the ocean as a function of the latitude, in the southern hemisphere.

a) State the trend shown by this graph.

**Ocean Temperature
(Southern Hemisphere)**

b) Draw a line of best fit.

INTERPOLATION

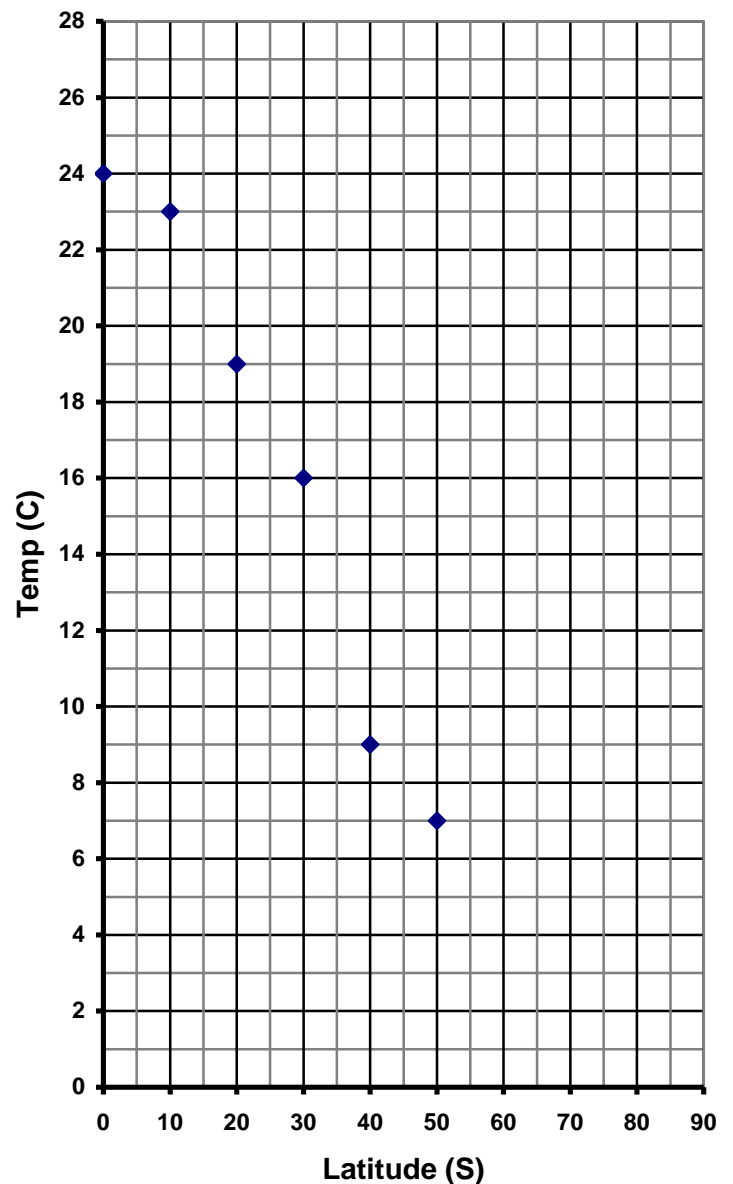
c) Predict the average temperature of the ocean at a latitude of 35°S.

d) At what latitude would you expect the temperature to be 17 °C?

EXTRAPOLATION

e) Predict the average temperature of the ocean at a latitude of 55°S.

f) At what latitude would you expect the average temperature to be 2 °C?

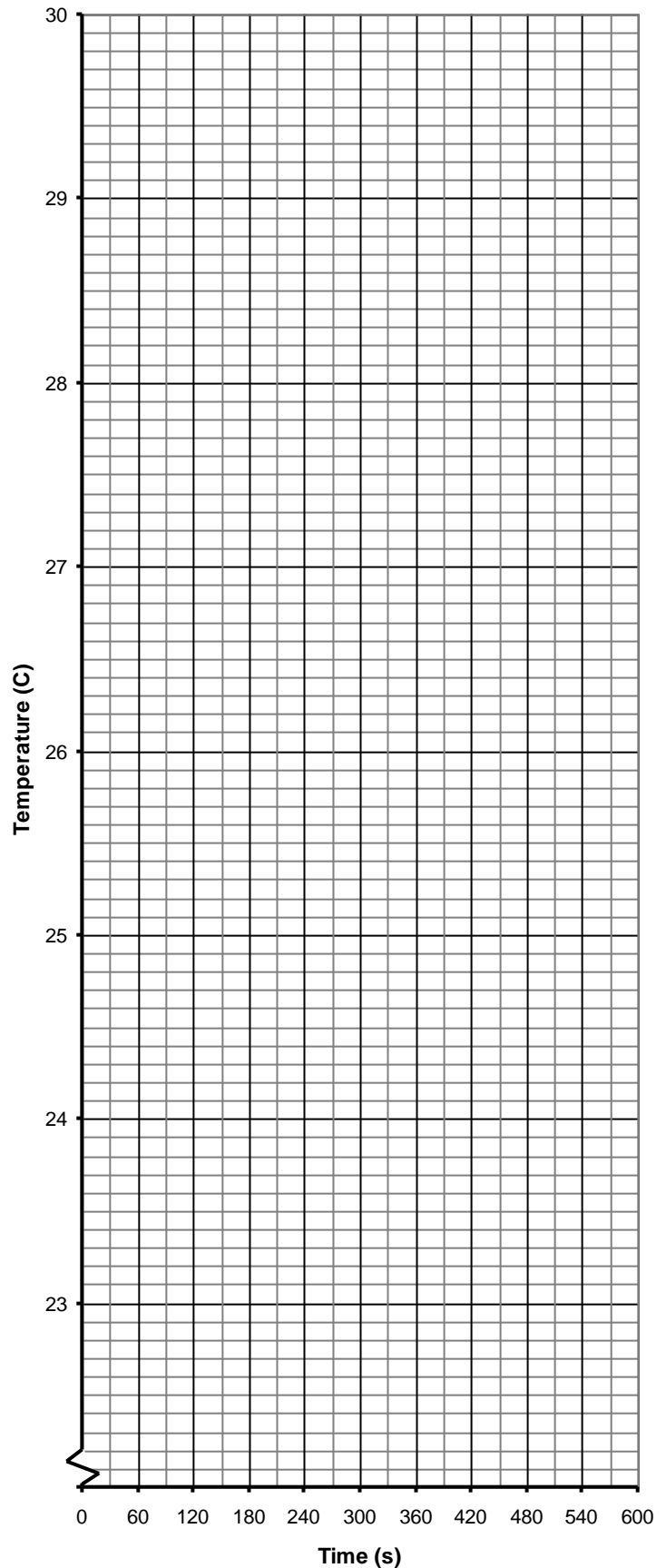




During a science experiment, students mixed Acetone and Chloroform, which generated an exothermic reaction (hot). The students recorded the temperature of the mixture as it cooled.

Time (s)	Temperature (°C)
30	29.6
60	29.9
90	29.5
120	29.2
150	29.4
180	29.1
210	28.7
240	28.6
270	28.5
300	28.3

- Create a scatter plot of the data.
 - Draw in a line of best fit.
 - State the trend shown by the data.
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- Predict the temperature after 100 sec.
 - Is your answer from d) an example of interpolation or extrapolation?
 - Predict how long it will take for the solution to cool to 27 °C.
 - Is your answer from f) an example of interpolation or extrapolation?



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Interpolation

Predicting a value inside of your data set.

Extrapolation

Predicting a value outside of your data set.

The following scatter plot shows the average temperature of the ocean as a function of the latitude, in the southern hemisphere.

- a) State the trend shown by this graph.

As the Latitude increases, the temperature decreases.

- b) Draw a line of best fit.

INTERPOLATION

- c) Predict the average temperature of the ocean at a latitude of 35°S.

12.4°C

- d) At what latitude would you expect the temperature to be 17°C?

23°S

EXTRAPOLATION

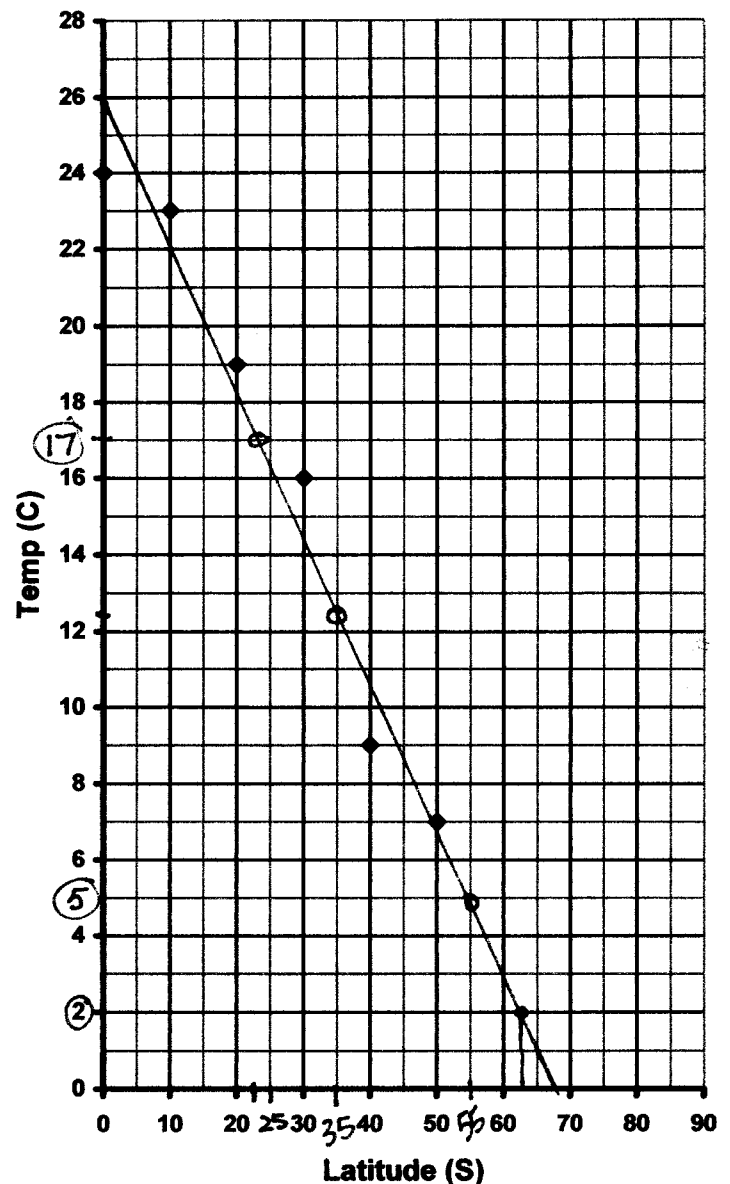
- e) Predict the average temperature of the ocean at a latitude of 55°S.

5°C

- f) At what latitude would you expect the average temperature to be 2°C.

63°S

Ocean Temperature
(Southern Hemisphere)



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120	29.2
150	29.4
180	29.1
210	28.7
240	28.6
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300	28.3

- Create a scatter plot of the data.
- Draw in a line of best fit.
- State the trend shown by the data.

Over time, the temperature decreases.

- Predict the temperature after 100 sec.

29.4°C

- Is your answer from d) an example of interpolation or extrapolation?

Interpolation

- Predict how long it will take for the solution to cool to 27°C.

540 seconds

- Is your answer from f) an example of interpolation or extrapolation?

Extrapolation

