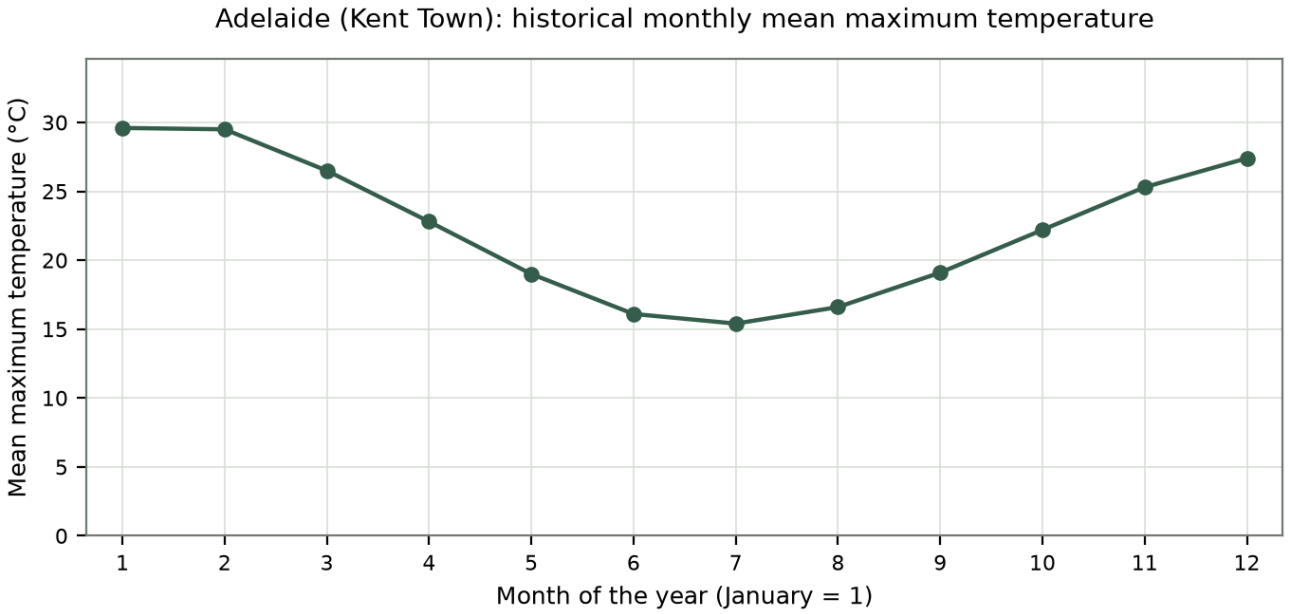
Worksheet | Algebra

Read relationships in real-world graphs

Name: _____ Date: _____

8 questions | 20 marks | Show your working.

Use exact values where possible. Simplify fractions and state units when required.



Bureau of Meteorology, Adelaide (Kent Town), station 023090; all-years mean maximum temperature, 1977-2020 (44 years of available temperature data).

Month number	Month	Mean maximum temperature (°C)
1	January	29.6
2	February	29.5
3	March	26.5
4	April	22.8
5	May	19.0
6	June	16.1
7	July	15.4
8	August	16.6
9	September	19.1
10	October	22.2
11	November	25.3
12	December	27.4

Historical monthly averages across 1977-2020, not a daily weather record or forecast. Use the table for published values to one decimal place.

1. Use the included Adelaide (Kent Town) climate graph and table. Name the horizontal variable and the vertical variable, including the vertical unit. [2 marks]

2. Use the included Adelaide (Kent Town) table to state the month and monthly mean maximum temperature at [2 marks]

(a) month 4

(b) month 11.

3. Use the included Adelaide (Kent Town) graph and table. Identify the highest and lowest monthly mean maximum temperatures and their months. Find the difference between these two values. [3 marks]

4. Use the included Adelaide (Kent Town) graph and table. Describe the relationship between month and mean maximum temperature [4 marks]

(a) from January to July

(b) from July to December. Include the first and last values for each interval.

5. March's mean maximum temperature is 26.5°C and October's is 22.2°C. Which month has the higher value, and by how much? [2 marks]

6. The monthly mean maximum temperatures are July 15.4°C, August 16.6°C and September 19.1°C. Calculate each month-to-month increase. Which of these two intervals has the larger increase? [3 marks]

7. May's mean maximum temperature is 19.0°C and September's is 19.1°C. Their points look almost level on the graph. Are the published values equal? Explain using their difference. [2 marks]

8. The graph uses historical monthly averages for Adelaide (Kent Town), calculated across 1977-2020. Its July mean maximum is 15.4°C. A student says, 'This graph proves that the maximum temperature on 15 July 2027 will be exactly 15.4°C.' Is the claim justified? Explain what the plotted value actually represents. [2 marks]