

WA5MPSS1

Statistics

Core + Challenge

NAPLAN-style

Line Graphs

I can read, draw and describe line graphs that show how something changes over time.

Name: _____ Date: _____ Score: _____ / 57

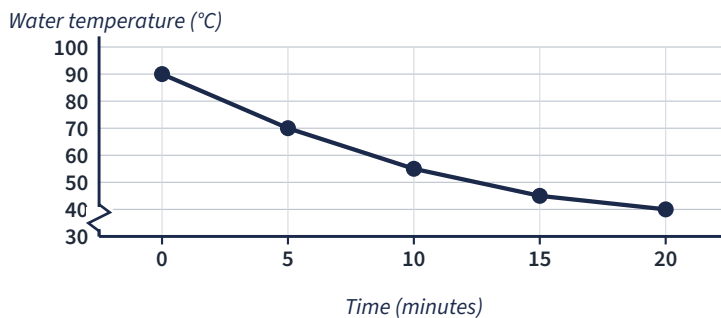
Key idea

A **line graph** shows how something we **measure** (temperature, height, mass) **changes over time**. Time goes along the bottom.

Check the **scale** first: what is each gridline worth?

Line goes **up**: increasing. **Down**: decreasing. **Flat**: no change. **Steeper**: changing faster.

Example: a kettle of water cooled down. At 5 minutes it was **70 °C**. Halfway between 10 and 15 minutes it was about **50 °C** (read between the points).



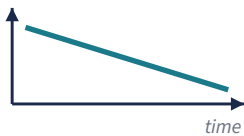
- The line goes **down**: the water is cooling.
- It is **steepest** at the start: it cooled fastest then.
- Between the points we can **estimate**.

A Warm up *read, describe and plot*

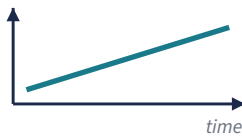
/ 16 marks

Describe each line. Write **increasing**, **decreasing** or **no change** (or two of these). 1 mark each.

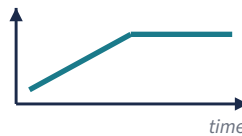
1



2



3



4



Would a **line graph** suit this data? Write **yes** or **no**. 1 mark each.

5

A sunflower's height each week

6

Each 5B student's favourite fruit

7

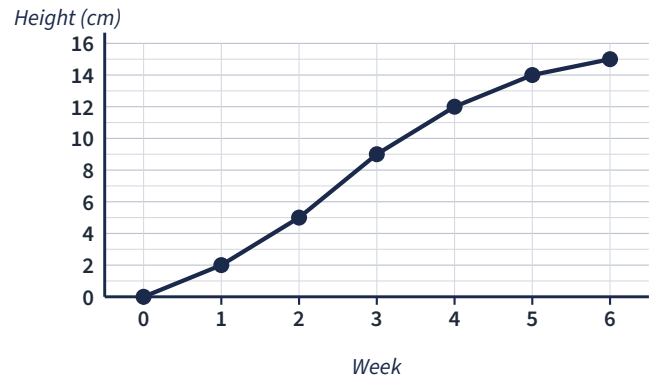
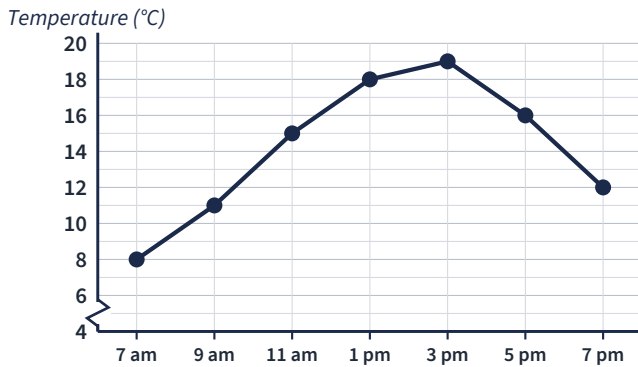
A cup of tea's temperature each minute

8

How many pets each student has

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The first graph shows the temperature in Kings Park on a winter day. The second shows the height of a bean plant. 1 mark each.



- 9 Temperature at 11 am?

- 10 The **highest** temperature, and when?

- 11 How much did it rise from 7 am to 1 pm?

- 12 Between which two times did it rise the **most**?

- 13 Height at week 3?

- 14 How much did it grow from week 3 to week 4?

- 15 **Estimate** the height at 2½ weeks.

- 16 Between which two weeks did it grow the **least**?

B Practise *use the skill*

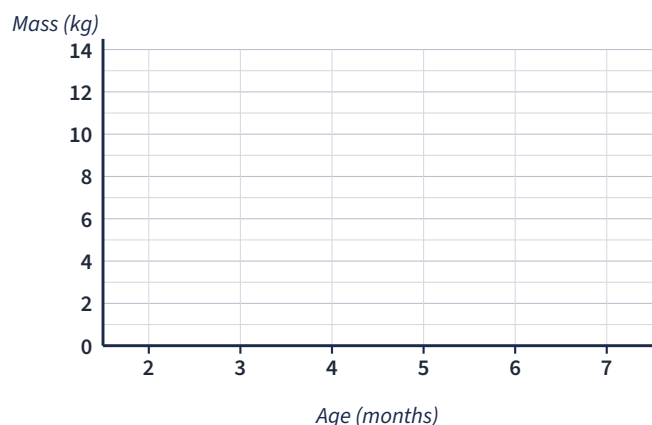
/ 22 marks

- 1 The table shows the mass of Ella's puppy. **a)** Plot the points on the graph and join them with straight lines. **b)** Between which two months did the puppy gain the **most** mass? **c)** Estimate its mass at 5½ months. [3 marks]

Age (months)	2	3	4	5	6	7
Mass (kg)	4	6	9	11	12	13

b) _____

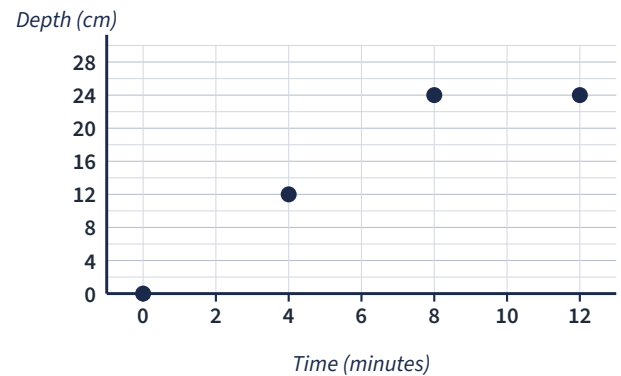
c) _____



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- 2 Mia filled a paddling pool with a hose. The table shows the depth of the water. [3 marks]
Some points are already plotted. **a)** Plot the **missing** points and join all the points. **b)** When was the hose turned off? **c)** Estimate the depth at 5 minutes.

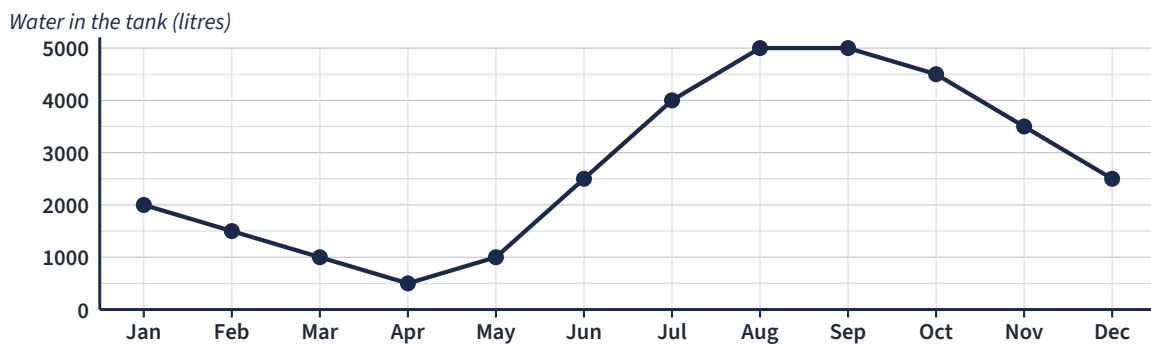
Time (min)	0	2	4	6	8	10	12
Depth (cm)	0	6	12	18	24	24	24



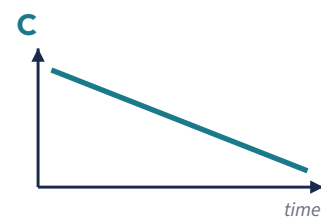
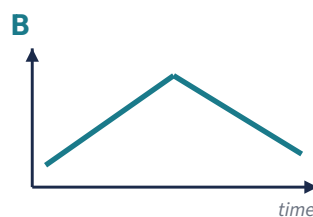
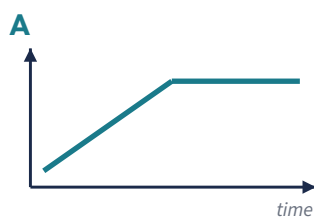
b) _____

c) _____

- 3 The Singh family measured the water in their rainwater tank on the 1st day of each month. The tank holds 5000 litres. **a)** In which months was the tank full? **b)** Describe how the water changed over the year. Give a reason. [2 marks]



- 4 Match each story to its graph. Write the letter. **1** The height of a candle as it burns. **2** The temperature in Perth from 6 am to 10 pm on a sunny day. **3** The water in a bath as it fills, then the tap is turned off. [2 marks]



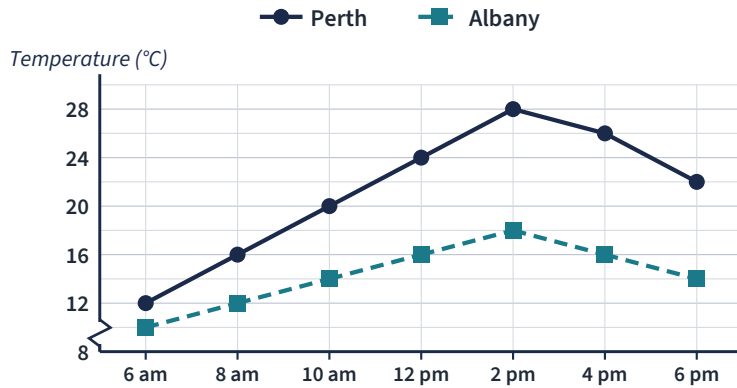
1: _____

2: _____

3: _____

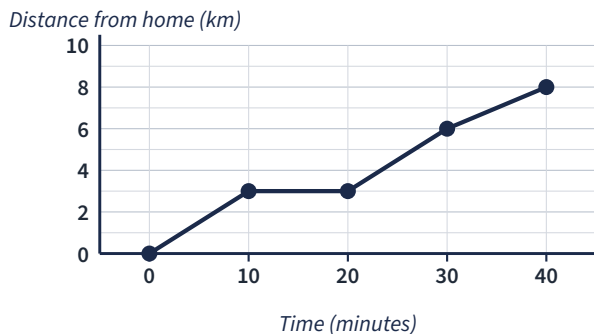
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- 5 The graph shows the temperature in Perth and in Albany on the same day. **a)** How much warmer was Perth than Albany at 12 pm? **b)** At what time was each town warmest? **c)** How many degrees did **each** town warm up from 6 am to 2 pm? Which town warmed up more? [3 marks]



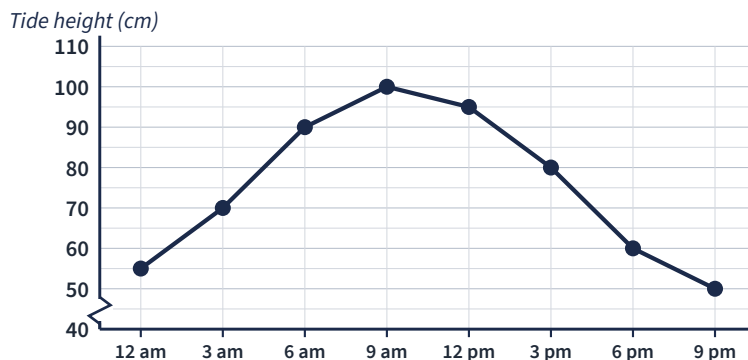
Answer: _____

- 6 Zac rode his bike from home to Kings Park. The graph shows his distance from home. **a)** What happened between 10 and 20 minutes? Circle one. **A** He rode very fast. **B** He stopped for a rest. **C** He rode back home. **D** He rode up a hill. **b)** How far had he ridden after 40 minutes? [2 marks]



Answer: _____

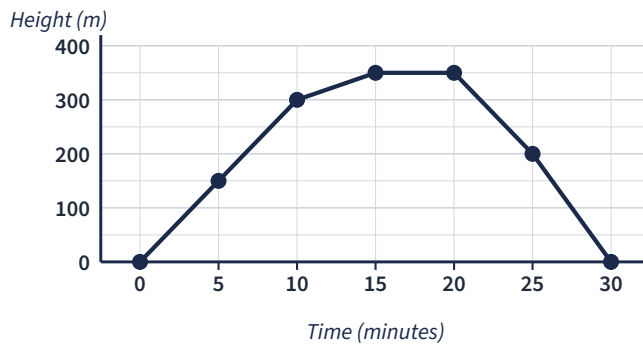
- 7 The graph shows the height of the tide at Fremantle over one day. **a)** What was the tide height at 6 am? **b)** At what time was the tide highest? **c)** For how many hours was the water rising? [3 marks]



Answer: _____

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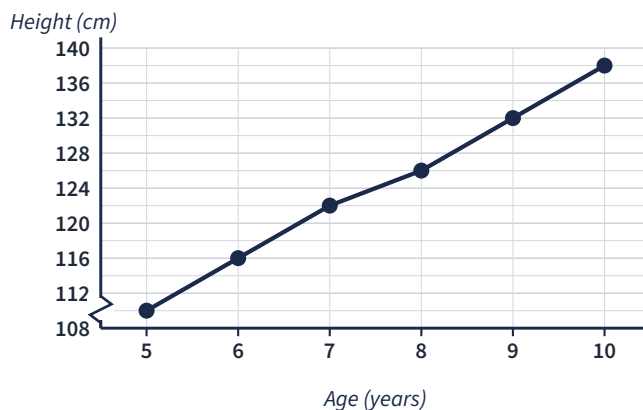
- 8 A hot-air balloon flew over the Avon Valley. Use the graph to complete the table. [2 marks]
Then say for how many minutes the balloon stayed at the **same** height.



Time (min)	Height (m)
5	
10	
15	
25	

Answer: _____

- 9 The graph shows Sam's height on each birthday. **a)** How much did Sam grow from age 5 to age 10? **b)** Between which two birthdays did he grow the **least**? [2 marks]



Answer: _____

C Think it through *explain your thinking*

/ 10 marks

- 1 **Always, sometimes or never true?** "The highest point on a line graph is at the end of the graph." Give examples. [2 marks]

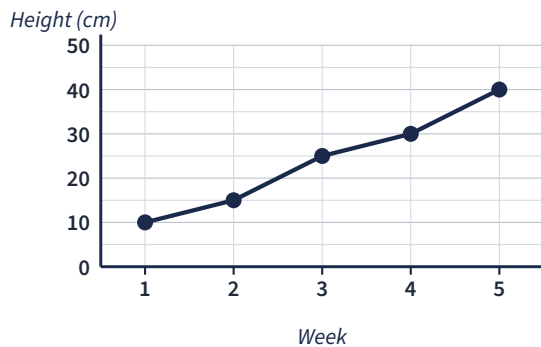
Circle one: **Always** / **Sometimes** / **Never**

- 2 Jo measured the temperature at 9 am (16 °C) and at 12 pm (22 °C). She says it **must** have been 19 °C at 10:30 am. Is Jo right? Explain. [2 marks]

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- 3 Which data set is the **odd one out**? Explain. **A** A tree's height each year **B** The temperature every hour **C** The number of students in each year level **D** A puppy's mass each month [2 marks]

- 4 Ali says, "The tomato plant was 21 cm tall in week 3." Do you agree with Ali? Explain his mistake. [2 marks]

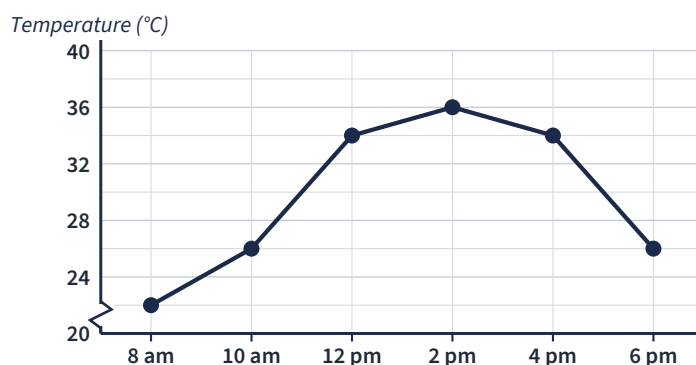


- 5 **True or false?** "A line graph is a good way to show the favourite sports of Year 5 students." Explain. [2 marks]

D Challenge *stretch yourself*

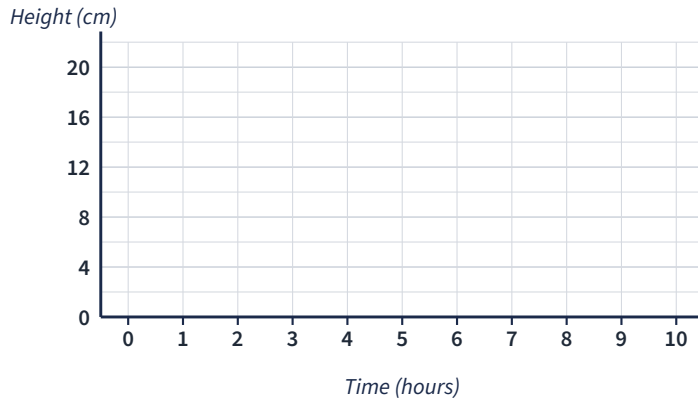
/ 9 marks

- 1 The school turns on the air-conditioner when the temperature is **above 30 °C**. Use the graph. **a)** At about what time did the temperature go above 30 °C? **b)** At about what time did it drop below 30 °C again? **c)** For about how many hours was the air-conditioner on? [3 marks]

Answer:

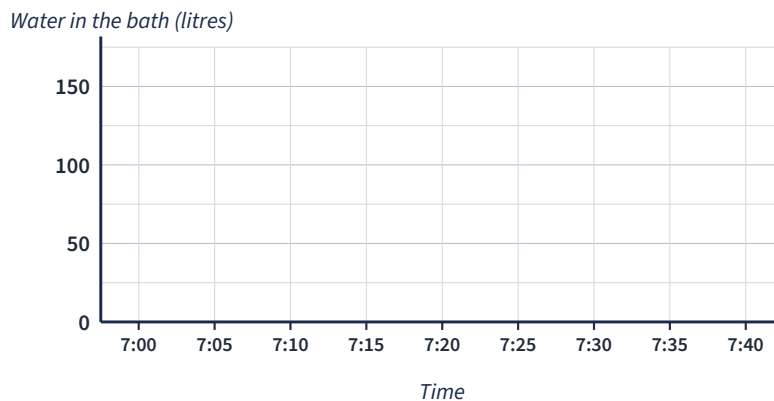
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- 2 A candle is **20 cm** tall. It burns down by the **same** amount every hour. After 3 hours it is **14 cm** tall. **a)** Plot the points for 0 hours and 3 hours. Join them and continue the line. **b)** How tall is the candle after 4 hours? **c)** After how many hours will it burn out? [3 marks]



Answer: _____

- 3 **a)** Draw a line graph for this story. At **7:00** a bath is empty. The tap fills it at a steady rate, and at **7:10** it holds **150 litres**. The water stays at 150 litres until **7:30**. Then the plug is pulled and the bath empties at a steady rate. It is empty at **7:40**. **b)** How much water was in the bath at 7:05? **c)** At what other time was the same amount in the bath? [3 marks]



Answer: _____

How did I go?

Warm up ____ / 16 Practise ____ / 22 Think it through ____ / 10 Challenge ____ / 9 **Total ____ / 57**

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