Mana Tohu Mātauranga o Aotearoa
New Zealand Qualifications Authority

Numeracy 2025 – Term 3

32406 Use mathematics and statistics to meet the numeracy demands of a range of everyday situations

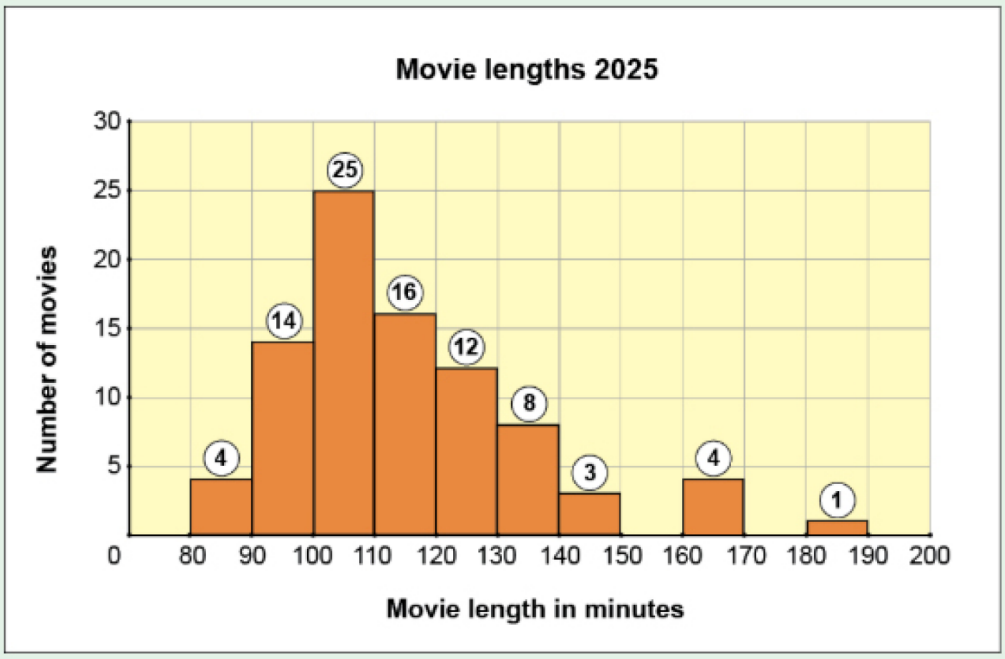
EXEMPLARS

Sample exemplars of acceptable candidate responses to Outcome 3 questions

Outcome 3 Exemplar Responses Term 3, 2025 – Week 1

Question 1b

This graph shows movie lengths in 2025.



A magazine says about 80% of the **87** movies are less than 130 minutes long.

(b) Is the magazine correct? Use numbers from the graph to explain your answer.

Type your answer in the box:

In total, 71 of the 87 movies are less than 130 minutes long. That is equal to around 81.61%, so the magazine is correct.

Annotation: *Achieved*, as the student correctly calculates the percentage from the total. Gives the correct position at the end of their statement.

AND:

(Continued on next page)

Type your answer in the box:

True, using the data in the graph we can see that 80 percent of the 87 movies are less than 130 by finding out what 80 percent of 87 is (0.8 x 87 = 69.6). We can see that there are 71 movies under 130 mins which is a little more than 80 percent.

Annotation: *Achieved*, as the position is stated and the student correctly calculates 80% of 87, and then compares that to 71 movies, indicating a correct summing of frequencies.

Question 1e

You want to buy two large popcorns, four large drinks, and two ice creams.

Snack prices

	Small	Medium	Large
Popcorn	$10	$11	$12
Drink	$8	$9	$10
Ice cream	$7 each		

(e) Is it cheaper to buy **two** combos, with the ice creams added, or pay the usual snack prices? Explain your answer using the information above.

Type your answer in the box:

Buy the 2 combos with the ice cream added because 2 large popcorns is $24, 4 large drinks is $40 and 2 ice creams is $14, all together the total is $78 but if you buy the 2 combos with 2 ice creams added, it comes to a total of $72.80 so by calculating both, buying the combos with the ice creams is cheaper than buying all the usual snacks.

Annotation: *Achieved*, as the student gives totals of $78 and $72.80 that indicate correct calculations. The correct position is given at the end.

AND:

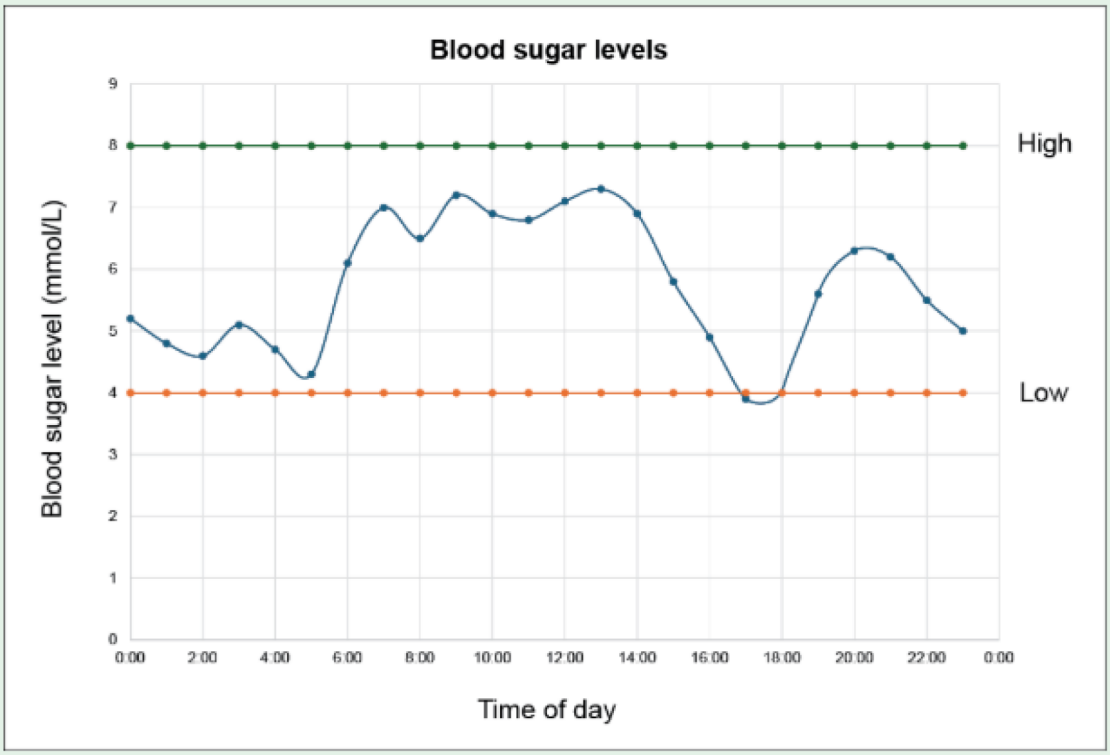
Type your answer in the box:

It is cheaper to buy two combos. It is cheaper by $5.20.
The combo and ice creams price = $29.40 + $29.40 + $7.00 + $7.00 = $72.80.
Usual snack prices = $12 + $12 + $10 + $10 + $10 + $10 + $7 + $7 = $78.00.

Annotation: *Achieved*, as the student takes the correct position. Correct calculations are explicitly stated.

Question 2e

The graph below shows a person's blood sugar levels.



This person went for a one-hour run, **starting** at 2:30 p.m.

(e) Did the run cause their blood sugar level to drop? Use numbers from the graph to explain your answer.

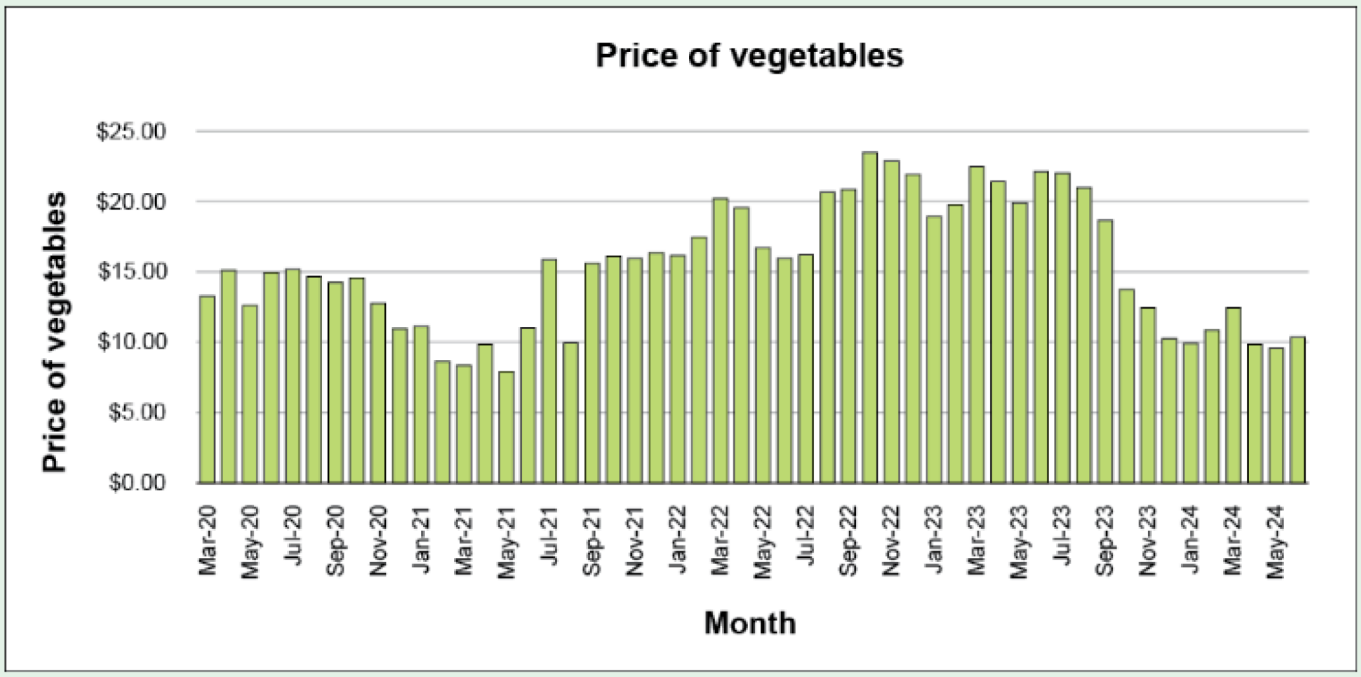
Type your answer in the box:

Yes, their blood sugar level dropped. In the graph it shows that at 2.30 pm their blood sugar was around 5.9 mmol/L and as they ran to about 4.25 pm, their blood sugar gradually dropped to about 3.9 mmol/L and began to rise again after 5 pm.

Annotation: *Achieved*, as the student takes an agreed position. They discuss the downward trend from 2.30 p.m. by providing correct time-to-blood sugar readings.

Question 3f

This graph shows how the price of vegetables has changed over time.



New Zealand had floods from July 2022 until March 2023.

An online post reads, "Flooding has caused big increases in the price of vegetables."

(f) Is the headline correct? Use months and prices from the graph to explain your answer.

Type your answer in the box:

This statement is correct because before the floods started the highest price of vegetables $20.00 and then after the floods started in July of 2022 till March of 2023, the cost went up to around $23.00 in the months of the flooding, so yes this statement is correct.

Annotation: *Achieved*, as the student agreed with the position taken. The student describes a trend of upward prices following the flooding period. Use of time and price information provides confidence that the graph is correctly interpreted.

AND:

(Continued on the next page)

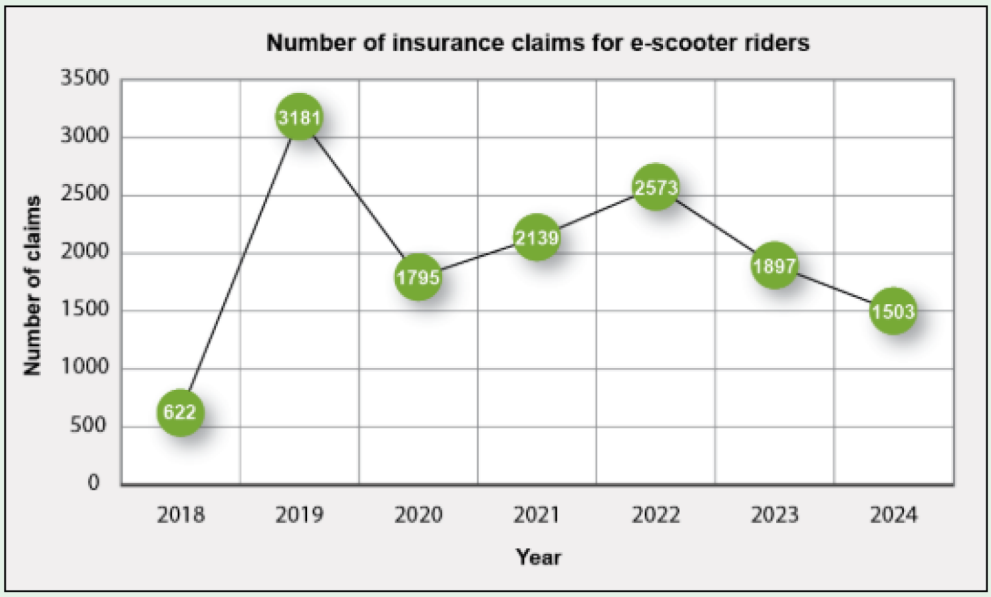
Type your answer in the box:

It is true because between the months of July 2022 and March 2023, the highest amount to pay for vegetables is between that time. Between July 2022 and March 2023, the highest price for vegetables was $23 whereas the prices started to decrease rapidly after July 2023 to $14 in just 3 months.

Annotation: *Achieved*, as the student agreed with the position taken. This was supported by a discussion of the trend that involves two-month price pairs.

Question 4f

The following graph shows the number of insurance claims made by e-scooter riders from 2018 to 2024.



(f) Does the graph show that e-scooter riders are making fewer insurance claims over time? Use information from the graph to explain your answer.

Type your answer in the box:

It does show that there were less claims over time.
e-Scooter riders are making less claims over recent years as in 2019, it spiked to over three thousand and then dropped significantly. It went up very gradually in 2021 and 2022, but in 2023 and 2024 it dropped majorly, as in 2022 it was 2573 claims and now in 2024 it was 1503 claims, showing a drop.

Annotation: *Achieved*, as the student takes a position and discusses an overall trend using 'year to claim' numbers information from the graph.

AND:

Type your answer in the box:

No, the number of claims went from 622 in 2018 to 1503 in 2024.

Annotation: *Achieved*, (just), as the student takes a position, but observation of trend is inferred from the specific 'year to claim' numbers given by the student.

Question 5b

In the image below, the swimmer's arm dips into the water at an angle.

(b) Does the angle measure 45°? In your answer, explain how the angle can be estimated without using a protractor.

Type your answer in the box:

Yes, it does. You can estimate that because a 90 degree angle is when you can make a perfect square and in this image, you can tell it is around half 90 degree angle and half of 90 is 45, so estimated it would be around 45 degrees.

Annotation: *Achieved*, as the student takes the correct position and a right angle is used as a benchmark for their estimation.

Question 5e

Here is an image of a 100-metre swimming final at the 2024 Olympics.

This table shows the swimming times of the three Olympic medal winners.

Gold medal	Silver medal	Bronze medal
49.90 seconds	**49.99** seconds	**50.45** seconds

(e) "The bronze medallist was only **half a second** slower than the gold medallist."

Is that statement correct? Use a calculation with decimals to explain your answer.

Type your answer in the box:

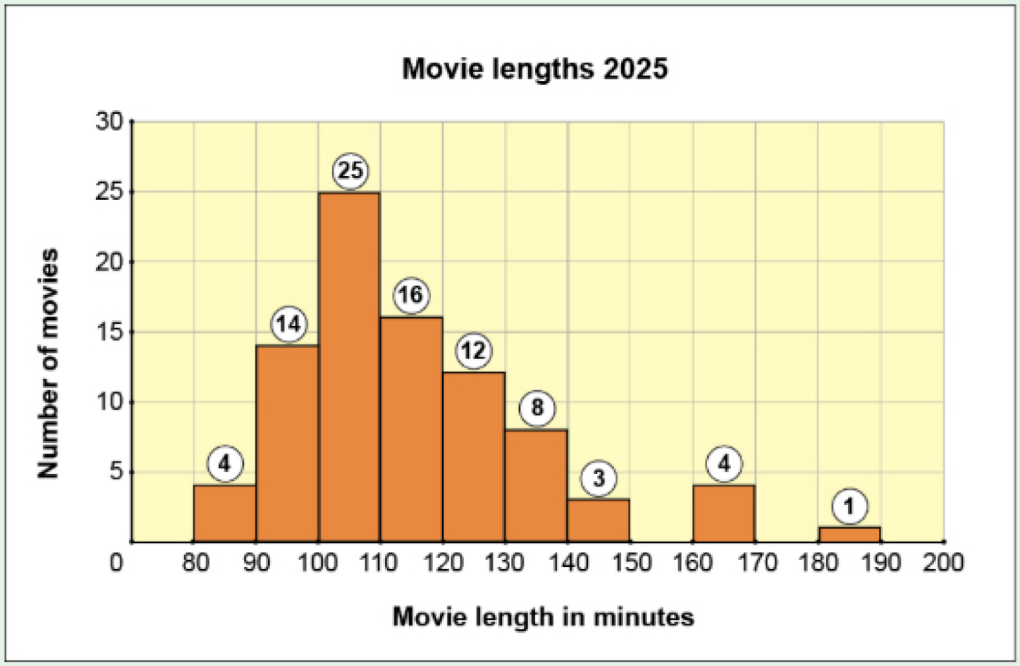
The bronze medalist was 0.55 seconds slower than the gold medalist, so the statement is incorrect, because it says that it was half a second, when it was more than half a second.

Annotation: Achieved, as the student takes a position. The presence of 0.55 indicates that a correct calculation has been made. Comparison of 0.55 to half a second is correct.

Outcome 3 Exemplar Responses Term 3, 2025 – Week 2

Question 1b

This graph shows movie lengths in 2025.



A magazine says about 20% of the **87** movies are 130 minutes long or longer.

(b) Is the magazine correct? Use numbers from the graph to explain your answer.

Type your answer in the box:

The magazine is correct. Because have 16 movies in 130 minutes long or longer. Then 87 x 0.2 = 17.4 movies. Because 16 is very close to 17.4, the magazine is correct.

Annotation: *Achieved*, as the student takes the correct position. The student correctly calculates that 16 movies are over 130 minutes in length. They explicitly show 20% of 87 = 17.4 and compare that amount to 16.

AND:

(Continued on next page)

Type your answer in the box:

The magazine is not correct. 20% of 87 movies is 17.4, which means that there should be 17 movies that the magazine claims is 130 minutes or longer. When you add up the number of movies that are 130 minutes and up (8+3+0+4+0+1) that equals to 16 movies. This is NOT the same as 20% of the movies, as the movies that are 130 minutes and up takes up 18.4% (approx.) of the 87 movies.

Annotation: *Achieved*, as the student takes a correct position. The student correctly calculates 20% of 87 = 17.4 first. They compare that amount to their correct calculation of 16 movies, arguing that 16 does not equal 17.4. Note the typo of 18.4 instead of 17.4 – this was ignored.

Question 1e

You want to buy one large popcorn, two large drinks, and one ice cream.

Snack prices

	Small	Medium	Large
Popcorn	$10	$11	$12
Drink	$8	$9	$10
Ice cream	$7 each		

(e) Is it cheaper to buy the combo with the ice cream added, or pay the usual snack prices? Explain your answer using the information above.

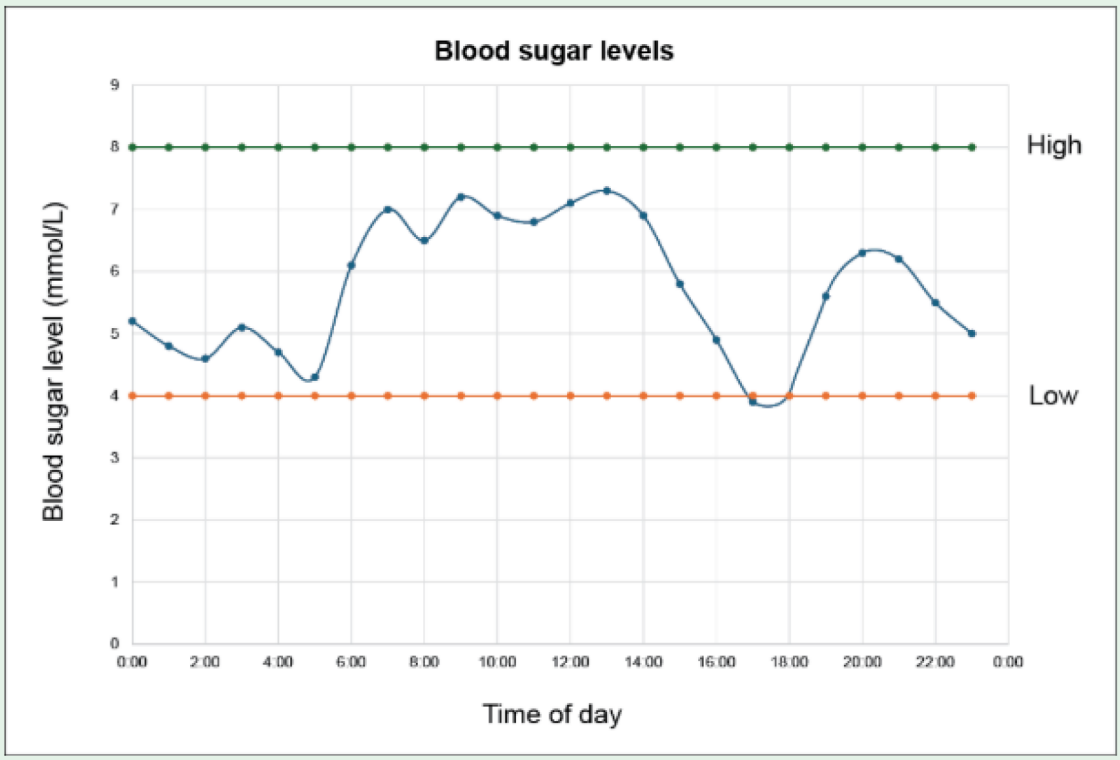
Type your answer in the box:

Yes, it is cheaper to get the popcorn combo because if you buy it individually it would have an all up price of $39, but with the combo, it's $29.40, plus the $7 dollar ice cream, so $36.40, making it $2.60 cheaper.

Annotation: *Achieved*, as the student takes the correct position. The presence of $39.00 and $36.40 is sufficient evidence of correct calculation. That is further supported by the difference in price.

Question 2e

The graph below shows a person's blood sugar levels.



This person went for a one-hour run, **starting** at 6:00 a.m.

(e) Did the run cause their blood sugar level to rise? Use numbers from the graph to explain your answer.

Type your answer in the box:

The run caused their blood sugar level to increase. At 6.00 a.m., their blood sugar was around 6 mmol/L, then at 7.00 a.m., their blood sugar had risen to about 7 mmol/L, from her run. There was a 1 mmol/L increase in blood sugar level.

Annotation: *Achieved*, as the student takes a position. There is a clear description of a trend (blood sugar was already rising) supported by a correct reading of time-to-BSL pairs relevant to the argument.

AND:

(Continued on next page)

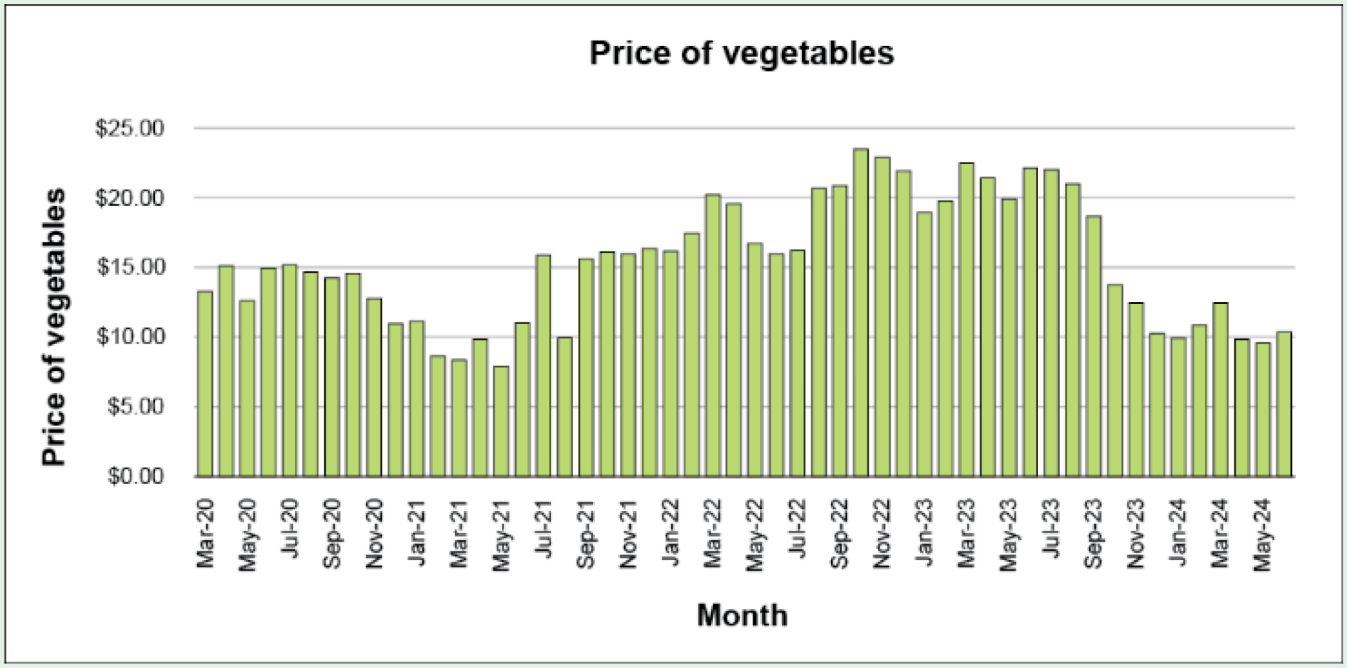
Type your answer in the box:

No, the run did not cause their blood sugar level to rise as the levels were already going up prior to the run. The increase started at 5 am and they did not start running until 6 am. By the time 6 am came, their blood sugar levels were already at 6 and the highest they got all day was just above 7.

Annotation: *Achieved*, negative position taken. There is a clear description of a trend (blood sugar was already rising) supported by correct BSL pairs relevant to the argument.

Question 3f

This graph shows how the price of vegetables has changed over time.



The price of vegetables in New Zealand changes during the year, depending on the weather.

An online post reads, "Vegetable prices are usually lowest in May."

(f) Is the headline correct? Use months and prices from the graph to explain your answer.

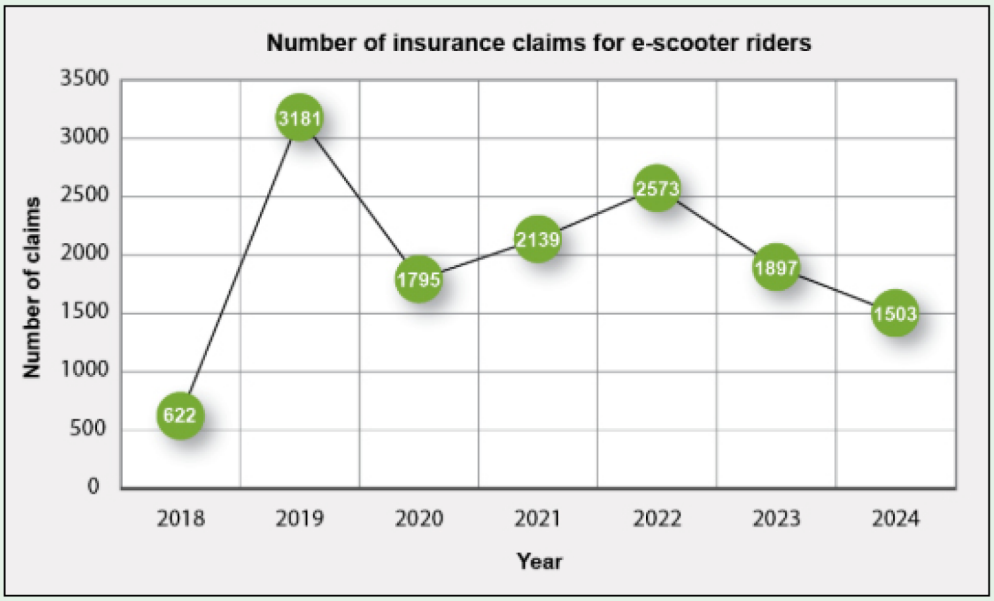
Type your answer in the box:

No, because in 2020, 2021 and 2022, the price of vegetables is lowest in May, but in 2023, the price of vegetables is lowest in January, and in 2024, the price of vegetables is lowest in March, not May. So, the headline is not correct.

Annotation: *Achieved*, as the student takes a negative position. They provide counter examples of January 2023 and March 2024 having cheaper prices than May. It can be inferred from the argument that the student is reading month and price pairs correctly.

Question 4f

The following graph shows the number of insurance claims made by e-scooter riders from 2018 to 2024.



(f) Does the graph show that e-scooter riders are making more insurance claims over time? Use information from the graph to explain your answer.

Type your answer in the box:

Yes, it shows that e-Scooter riders are making more insurance claims over time. This is because: though claims drop by 1386 from 2019 to 2020, and 676 from 2022 to 2023, and 394 claims from 2023 to 2024, the difference between the number of claims from 2018 and 2024 has still risen by 881 claims (1503 – 622 = 881). Therefore e-Scooter riders have been making more insurance claims over time.

Annotation: *Achieved*, as the student takes a positive position and provides clear evidence of reading 'year to number of claim' pairs. They use the 2018 and 2024 comparison to argue for more claims.

Question 5b

In the image below, the swimmer's arm dips into the water at an angle.

(b) Does the angle measure 30°? In your answer, explain how the angle can be estimated without using a protractor.

Type your answer in the box:

No, it does not measure 30 degrees. This is because the angle seems to be about half of 90 degrees, which is 45 degrees. Though it is an acute angle, the angle is too big to be 30 degrees. If it were 30 degrees, there would have to be 12 of that angle that fit into a total 306 degrees (360 / 30 = 12); the angle shown seems too big to have 12 of that angle to make up 360 degrees.

Annotation: *Achieved*. The position is inferred from the student's reasoning that the angle is not one-twelfth of a full turn.

Question 5e

Here is an image of a 100-metre swimming final at the 2024 Olympics.

This table shows the swimming times of the three Olympic medal winners.

Gold medal	Silver medal	Bronze medal
49.90 seconds	**49.99** seconds	**50.45** seconds

(e) "The silver medallist was only **one tenth of a second** slower than the gold medallist."

Is that statement correct? Use a calculation with decimals to explain your answer.

Type your answer in the box:

No, because the difference of the gold medal and the silver medal is 49.99 – 49.90 = 0.09 seconds. Then one tenth of a second = 1/10 seconds = 0.1 seconds. Because 0.1 is NOT equal to 0.09, the statement is not correct.

Annotation: *Achieved*, as the student states their position. The student calculates the difference in times correctly and compares the difference to 1/10 of a second (0.1).

AND:

(Continued on next page)

Type your answer in the box:

No, they are wrong, because one tenth of a second is 0.10 seconds, but they were 0.09 seconds slower.

Annotation: *Achieved*, as the student states their position. The correct difference and comparison of that difference to 0.1 seconds shows the student carried out the calculation correctly.