Summary

Test Identification	
Name	2021 MAT SW 1.5
Date Created	19 Jan 2021
Date Modified	09 Mar 2021
Subject	Mathematics
Status	SCORED
Sequence Number	1098015
Total Test Time	59 minutes
Delivery Method	Onscreen

Curriculum Strand			
Number Sense & Operations	10	**Number Knowledge**	10
Statistics	10	**Algebra**	15

Curriculum Level					
4B	4	**4P**	0	**4A**	3
5B	10	**5P**	10	**5A**	11
6B	3	**6P**	0	**6A**	4

Cognitive Processing			
Surface	23	**Deep**	22

Slider Settings			
Strands		**Level**	
Number Knowledge	Most	**Level 4**	Few
Number Sense & Operations	Most	**Level 5**	Most
		Level 6	Few
Algebra	Most		
Statistics	Most		

Marking Guide : 2021 MAT SW 1.5

Q.No	Marking Key
1	d
2	1/5 (or equivalent fraction), 20% 'Both required for 1 mark.'
3	0.31, 31% 'Both required for 1 mark.'
4	1/4 (or equivalent fraction), 0.25 'Both required for 1 mark.'
5	6 033 103
6	d
7	a
8	a
9	d
10	The sink had been emptied and then was refilled or [simply] the sink is empty. 'Any equivalent answer for 1 mark.'
11	The tap was turned off or blocked so that no more water went into the sink. 'Any equivalent answer for 1 mark.'
12	a
13	a
14	c
15	a
16	d
17	c
18	b
19	a
20	a
21	d
22	a
23	c
24	b
25	d
26	c
27	c
28	c

Instructions

Underlined Questions e.g. **10** :Use teacher judgement. Give 1 if answer matches marking guide (unless otherwise instructed). For incorrect answers give 0 (zero).

All other Questions: Enter the response chosen by the student using letters. For example, 'a' for the first option; 'b' for the second option; 'c' for the third option and so on.

Questions Not Answered: Enter a dash (-).

Q.No	Marking Key
29	90%
30	72.9%. Because clean up is 10% of remaining oil per day (i.e. 10% x 90% etc) 'answer and some explanation or calculation id required for 1 mark'
31	6.6 days, so 7 days. Continue the series of decreasing 10% per day of remaining oil '7 days and some explanation or calculation required for 1 mark'
32	c
33	c
34	d
35	a
36	c
37	256 'Accept 16 squared'
38	d
39	d
40	a
41	Not true. Does not allow for greater number of cars, or greater mileage covered nowadays, or similar 'Must have clear inference of "not true" and good/suitable explanation for one mark.'
42	1, 3, 6 'all 3 for one mark'
43	Are my mobile phone charges increasing? OR Have national and international toll charges fallen as mobile charges have increased? OR What is the relationship between? OR similar 'Could use words like "compare" or "explore" or "relationship" to indicate a suitable investigation'
44	Impossible to dig accurate cylinder OR soil increases in volume when dug OR needs to dig bigger hole than calculated OR similar
45	$300

Instructions

Underlined Questions e.g. **10** :Use teacher judgement. Give 1 if answer matches marking guide (unless otherwise instructed). For incorrect answers give 0 (zero).

All other Questions: Enter the response chosen by the student using letters. For example, 'a' for the first option; 'b' for the second option; 'c' for the third option and so on.

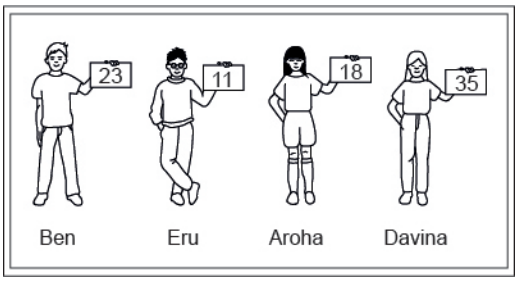
Questions Not Answered: Enter a dash (-).

Choose a circle to show how much each sentence is like you	Very Unlike Me 1	Unlike Me 2	Like Me 3	Very Like Me 4
01. I like maths at school.	⬭	⬭	⬭	⬭
02. I am good at maths.	⬭	⬭	⬭	⬭
03. My teacher thinks I am good at maths.	⬭	⬭	⬭	⬭
04. My family/whānau think I am good at maths.	⬭	⬭	⬭	⬭
05. I enjoy doing maths in my own time (not at school).	⬭	⬭	⬭	⬭
06. I enjoy doing things in maths that I haven't tried before.	⬭	⬭	⬭	⬭

Practice Questions

These practice questions are to help you understand how to show your answer for different types of questions.

P01. Who is holding a card with an even number on it?



⬭ Ben

⬭ Eru

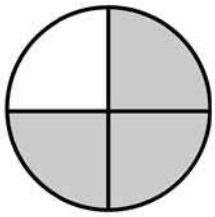
⬭ Aroha

⬭ Davina

P02. Complete this number pattern.

2, 4, ____, ____, 10

P03. What fraction of this circle is shaded?



☐

———

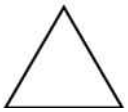
☐

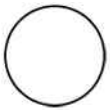
P04. Match the sentence with the correct shape.

☐ 1. I have three sides

☐ 2. I have 4 sides

a. 

b. 

c. 

P05. Which numbers make this number sentence **TRUE**?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

P06. Put the numbers 1, 2, 3, and 4 in the boxes to order these numbers from biggest (1) to smallest (4).

☐ 3

☐ 7

☐ 2

☐ 0

P07. Select whether the following statements are True or False.

	TRUE	FALSE
In the number 213, the value of 1 is ten.	⬭	⬭
In the number 504, the value of 5 is fifty.	⬭	⬭

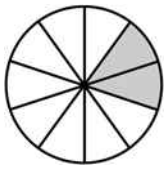
01. A butcher wrote these weights on four packages of meat.
Which was the lightest package?

- ⬭ 4.102 kg
- ⬭ 4.2 kg
- ⬭ 4.12 kg
- ⬭ 4.012 kg

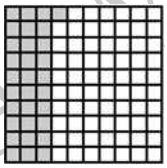
Use the following information to answer questions 02 to 04.

Complete the chart to show equivalence.

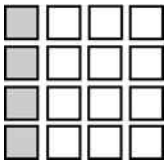
02.

Diagram	Fraction	Decimal	Percentage
	_____	0.2	_____

03.

Diagram	Fraction	Decimal	Percentage
	$\frac{31}{100}$	_____	_____

04.

Diagram	Fraction	Decimal	Percentage
	_____	_____	25%

End of Section

05. Write six million, thirty-three thousand, one hundred and three in digits.

_____

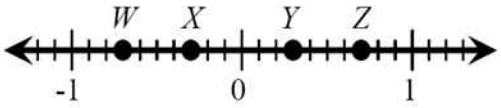
06. Which is read
"fifty-five and twenty-one thousandths"?

- ⬭ 5 521 000
- ⬭ 55 210
- ⬭ 55.21
- ⬭ 55.021

07. Josh rounded the number 36 796 to the nearest ten, to the nearest hundred, to the nearest thousand, and to the nearest ten-thousand.
Which two roundings should have produced the same number?

- ⬭ nearest ten and nearest hundred
- ⬭ nearest hundred and nearest thousand
- ⬭ nearest ten and nearest thousand
- ⬭ nearest hundred and nearest ten-thousand

08. Which point is located ***closest*** to $-\frac{7}{10}$ on the number line below?



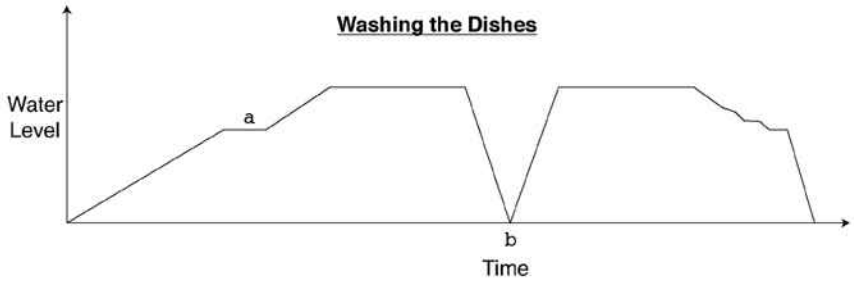
- ⬭ W
- ⬭ X
- ⬭ Y
- ⬭ Z

09. A journalist is interested in estimating the percentage of Massachusetts residents who support the use of state tax dollars to pay for a new civic centre in Springfield. Which of the following would result in the **MOST** reliable estimate?

- ⬭ Survey 100 randomly selected civic centre board members.
- ⬭ Survey 100 randomly selected Boston residents.
- ⬭ Survey 100 randomly selected Springfield residents.
- ⬭ Survey 100 randomly selected Massachusetts residents.

Use the following information to answer questions 10 to 11.

The graph shows the level of water in the sink when Harold was doing the dishes.



10. What do you think happened at b?

_____

_____

11. What do you think happened at a?

End of Section

12. In a school election with three candidates, Joe received 120 votes, Mary received 50 votes and George received 30 votes.
What percentage of the total number of votes did Joe receive?

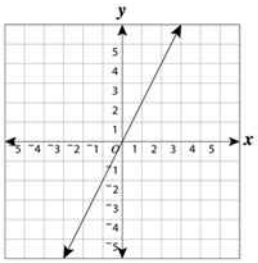
- ⬭ 60 %
- ⬭ $66\frac{2}{3}$ %
- ⬭ 80 %
- ⬭ 120 %

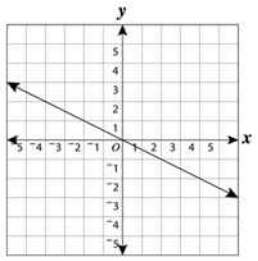
13. What is the prime factorisation of 12?

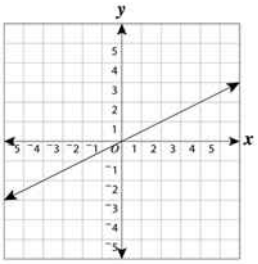
- ⬭ $2^2 \times 3$
- ⬭ $2^2 \times 3^2$
- ⬭ 4×3
- ⬭ 1×2

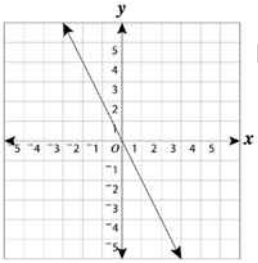
14. Which is a graph of a line that contains all the points in this table of ordered pairs?

x	y
-4	-2
0	0
2	1









15. Ellen had some change in her pocket. After her friend gave her $0.45, Ellen had $1.35 altogether.
Which equation can she use to find the original amount of money, *m*, she had in her pocket?

- ⬭ $m + 0.45 = 1.35$
- ⬭ $1.35 = m - 0.45$
- ⬭ $m = 1.35 \times 0.45$
- ⬭ $m + 1.35 = 0.45$

16. If *n* represents an even number greater than 2, what is the next larger even number?

- ⬭ $n + 1$
- ⬭ $2n + 1$
- ⬭ $2n$
- ⬭ $n + 2$
- ⬭ n^2

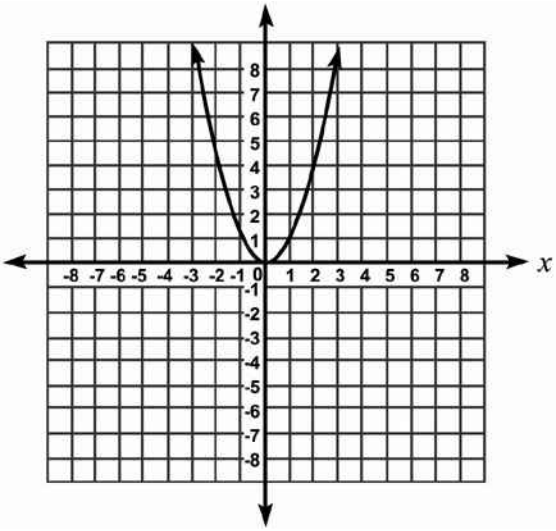
17. What is the value of *x* if $-3x + 2 = -7$?

- ⬭ $x = -6$
- ⬭ $x = -3$
- ⬭ $x = 3$
- ⬭ $x = 6$

18. Which one of the following statements is **TRUE**?

- ⬭ $\sqrt{95} = 10$
- ⬭ $\sqrt{95} < 10$
- ⬭ $\sqrt{95} > 10$
- ⬭ $\sqrt{95} < 9$

19. This is a graph of $y = x^2$
If the graph is moved up 3 units, what equation will it represent?



- ⬭ $y = x^2 + 3$
- ⬭ $y = (x + 3)^2$
- ⬭ $y = (x - 3)^2$
- ⬭ $y = x^2 - 3$

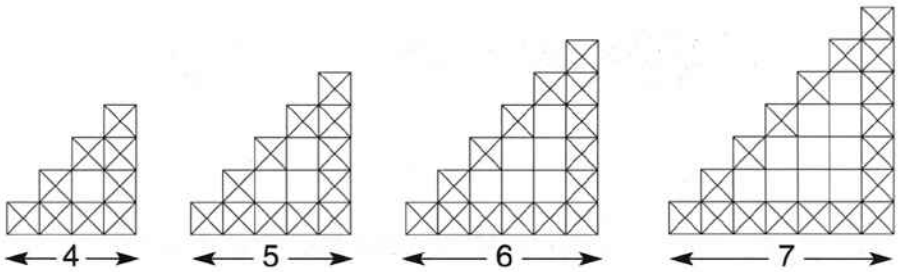
20. 7, 7, 7, 7, 14

For the scores above, which one of the following does **NOT** equal seven?

- ⬭ Mean
- ⬭ Median
- ⬭ Mode
- ⬭ Range

Use the following information to answer question21..

Huan investigated Tapatoru patterns.



He recorded his observations in the table below.

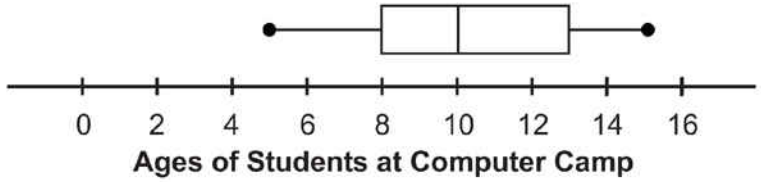
Number of squares across the bottom (n)	Number of crosses (c)
4	9
5	12
6	15
7	18

21. Which one of the following rules can Huan use to work out the number of crosses (c) in a pattern with any number of squares (n) on the bottom row?

- ⬭ c = 3n
- ⬭ c = n + 3
- ⬭ c = n + 5
- ⬭ c = 3n - 3

End of Section

22. During the summer, Mrs Duncan teaches at a computer camp for young people. The ages of the students during one session are summarised in this box-and-whisker plot.



Ages of Students at Computer Camp

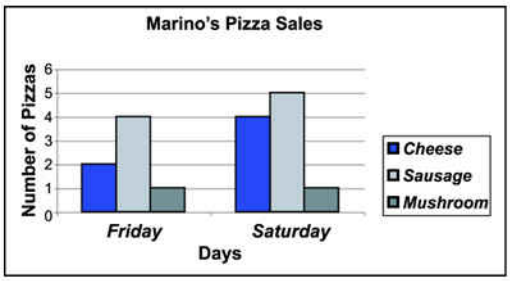
Which set of data could have been used to construct the box-and-whisker plot?

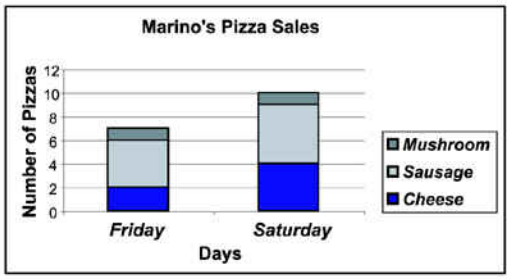
- ⬭ 5, 8, 10, 10, 10, 13, 15
- ⬭ 5, 8, 10, 10, 12, 14, 15
- ⬭ 5, 6, 10, 10, 11, 15, 15
- ⬭ 5, 7, 9, 10, 13, 14, 15

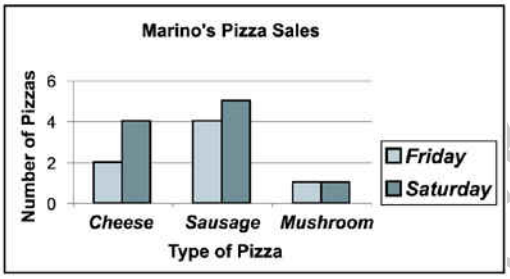
23. Which of these is equal to $2x - 3y + 7x + 5y$?

- ⬭ $5x + 2y$
- ⬭ $5x + 8y$
- ⬭ $9x + 2y$
- ⬭ $9x + 8y$

24. The graphs below give information about the number of pizzas sold on a Friday and Saturday at Marino's Pizza.
Which one of these graphs is **BEST** for quickly finding the total number of pizzas Marino's sold?







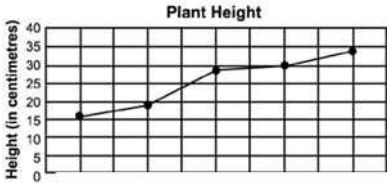
25. The sum of the ages of Alice, Betty and Clara is 29 years. Betty is 4 years older than Alice and Clara is 6 years older than Betty.

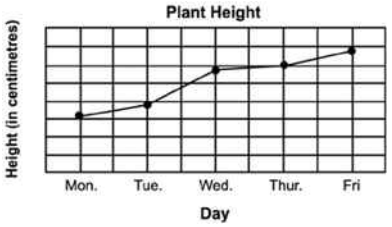
What is Alice's age?

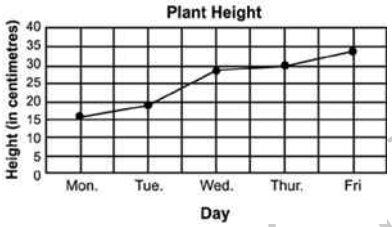
- $6\frac{1}{3}$ years
- 19 years
- 10 years
- 5 years

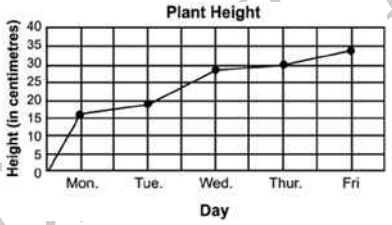
26. The table shows the height of a bean plant over a 5-day period.
Which of the following shows this data correctly graphed?

Day	Height
Monday	16 cm
Tuesday	19 cm
Wednesday	28 cm
Thursday	30 cm
Friday	34 cm

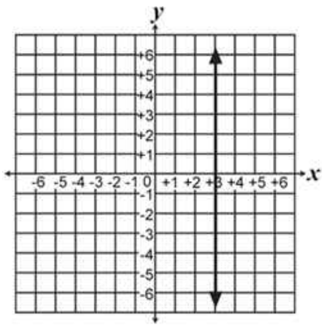


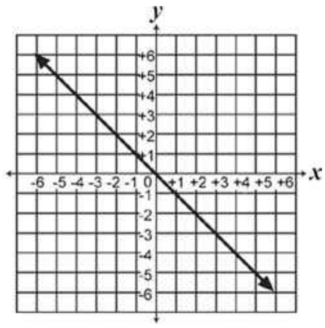


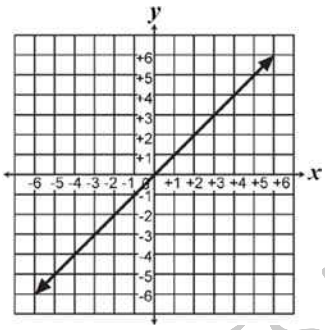


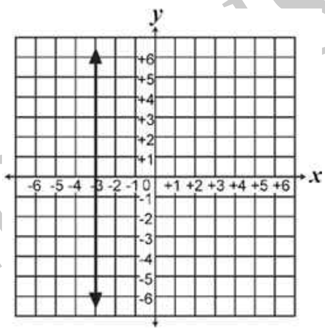


27. Which is the graph of $y = x$?









28. Jupiter is approximately 780 million kilometres away from the sun.

If light travels at a rate of about 3.0×10^5 km/sec, about how long does it take the light from the sun to reach Jupiter?

- ⬭ 2.34×10^{14} seconds
- ⬭ 2.34×10^{8} seconds
- ⬭ 2.60×10^{3} seconds
- ⬭ 2.60×10^{-1} seconds

Use the following information to answer questions 29 to 31

A company is hired to clean up an oil spill in a harbour. Each day 10% of the remaining oil can be cleaned from the surface of the water.

29. What percent of the oil spill will remain after one clean-up day?

_____

30. What percent of the oil spill will remain after 3 clean-up days?
Explain how you found your answer.

_____

_____

_____

_____

31. How many clean-up days will it take to remove at least 50% of the oil spill? Explain how you found your answer.

End of Section

32. Arrange from smallest to largest:

$2,\ 2\frac{3}{4},\ \frac{8}{3},\ 2.6$

- ⬭ $2,\ 2.6,\ 2\frac{3}{4},\ \frac{8}{3}$
- ⬭ $2,\ 2\frac{3}{4},\ 2.6,\ \frac{8}{3}$
- ⬭ $2,\ 2.6,\ \frac{8}{3},\ 2\frac{3}{4}$
- ⬭ $2,\ \frac{8}{3},\ 2.6,\ 2\frac{3}{4}$

33. If $\frac{10.3}{5.62} = \frac{n}{4.78}$, then, of the following, which is closest to n?

- ⬭ 2.61
- ⬭ 3.83
- ⬭ 8.76
- ⬭ 8.82
- ⬭ 12.11

34. A bag contains 80 marbles that are either white, orange, or green. If 25% are green and there are four times as many white marbles as orange marbles, what percent are white?

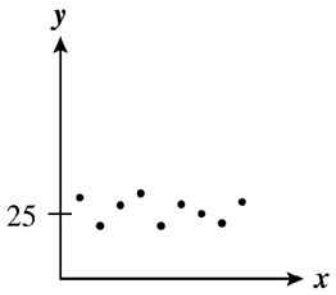
⬭ 12%

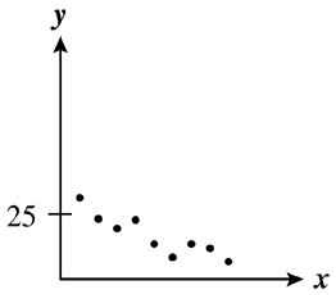
⬭ 15%

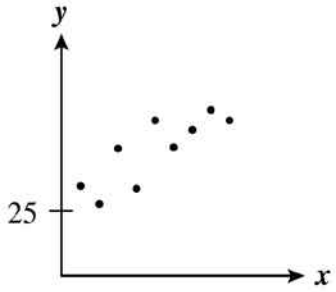
⬭ 48%

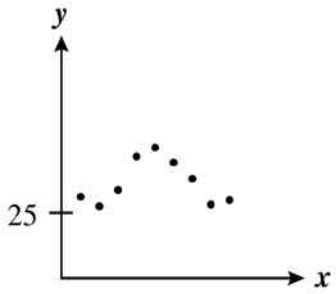
⬭ 60%

35. Which of the following scatterplots shown below would be **BEST** represented by a line of best fit (trend line) with the following equation?
$y = 25$









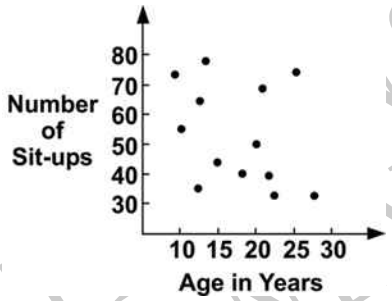
36. Which of the following would **NOT** be suitable for time series data collection?

- ⬭ Daily time spent on sport
- ⬭ Monthly telephone account
- ⬭ Number of students in each class in your school at 10 o'clock today
- ⬭ Weekly mass (weight) of a new born baby

37. What is the solution to the equation $\sqrt{x} = 16$?

_____

38. In the graph below, each dot shows the number of sit-ups and the corresponding age for one of 13 people.
According to this graph, what is the median number of sit-ups for these 13 people?



- ⬭ 15
- ⬭ 20
- ⬭ 45
- ⬭ 50
- ⬭ 55

39. Which of the following is **NOT** true?

- ⬭ $3x$ - 8 is an expression with one variable.
- ⬭ $6x + 2y$ - 7 is an expression with three terms.
- ⬭ In the expression, $4x + 6y$, the coefficient of x is 4.
- ⬭ $5x + 4 = 39$ is an expression.

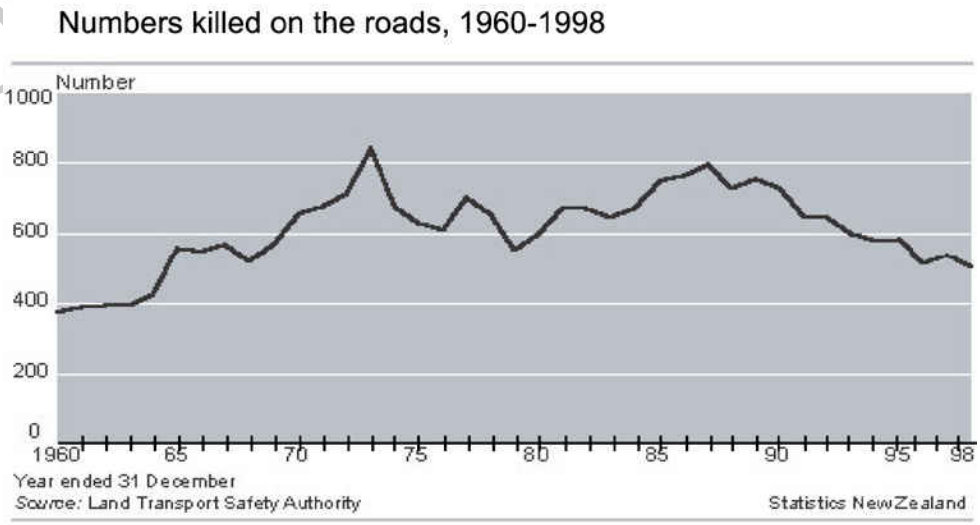
40. A linear relationship between x and y is shown in the table below.
What is the value of a?

x	−5	0	1	2	3
y	***a***	5	2	−1	−4

- ⬭ a = 20
- ⬭ a = 3
- ⬭ a = -3
- ⬭ a = -10

Use the following information to answer question41..

The graph shows the number of people killed on the roads in New Zealand between 1960 and 1998.



41. Comment on the statement, "The roads are not as safe as they used to be in 1960, as there are still more people killed on our roads."

End of Section

42. The rule for the nth term (t_n) of a sequence is given by $t_n = \frac{1}{2}n(n+1)$ where n = 1, 2, 3, ...

List the first 3 terms in this sequence.

43. Telebro Telephone Company charges customers for the phone rental, mobile phone charges, and for national and international toll calls.
Write a suitable question for an investigation of telephone charges.

Use the following information to answer question44..

Rhonda wants to know how much soil she will have to remove to install a circular swimming pool in her garden. The pool will have a diameter of approximately 4 metres and an average depth of about 1.5 metres. She used π on her calculator and worked out that it would require 18.84956 cubic metres of soil to be removed.

44. An accurate calculation is of little practical use to Rhonda.

Give two reasons for this.

1 _____

2 _____

45. Kiriama bought a rental property as an investment.
He increased the weekly rent by 15% to $345.

What was the rent before the increase?

_____

Please provide these instructions to all staff involved with administering e-asTTle online.

Before the testing session

1. Make sure students have the right devices and browsers installed

Unsupported devices may result in the test not displaying correctly and affect students' scores.

Desktop/Laptop	Large Tablets (9"+)
• Windows, Mac or Chromebook • Minimum window width: 1280 pixels • Windows devices need up-to-date Edge, Chrome, Firefox or IE11 • Windows tablets/hybrids e.g., Surface Pro must have a keyboard attached • Mac devices need recent Chrome or Safari	• iPads: iOS 10+ with Safari • Androids: Large tablet e.g., Samsung Galaxy Tab 4. Must have Android 5+ and latest Chrome • Minimum window width: 768 pixels iPad Minis and small Androids must not be used.

More information on device requirements and the underlying rationale is available on the help site.

2. Sit the Practice Test

A practice test for each subject is available. These are also available in the Student Portal (no login required). Practice tests are designed to familiarise you and your students with e-asTTle online before sitting a real test. Each practice test contains attitude questions, look-over time and 5-8 questions designed to be relatively simple to answer. Teacher scripts are available for practice tests.

3. Ensure you have student login information

More information on accessing student logins and resetting passwords is available on the help site.

4. Check if calculators are required (Maths/Pāngarau)

Tests with questions at mostly Level 5 and 6 require the use of calculators. Tests with questions at mostly Levels 2 to 4 do NOT require a calculator.

During the testing session

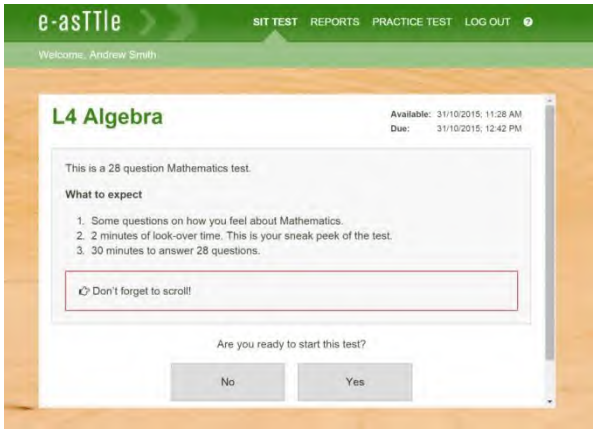
1. Check equipment

- Make sure students' devices are charged.
- Make sure students have scrap paper and a pen/pencil for working, calculators (if needed) and a quiet activity they can continue with if they finish early.

2. Read the Test Details to students

Once students select a test, they will see the test details page (example shown on right).

Read through this page aloud with your students.



Other reminders to discuss with students:

- Once they choose 'Yes', the timer starts. Once the timer is counting down, there is no way to pause the test. If students close the test accidentally, they can re-open it again, provided the timer hasn't finished.
- Ask students to raise their hand if something seems wrong.
- Fullscreen mode is recommended.

For students on iPad or Android tablet devices: remind them to lock their device in portrait mode.

For students on Windows hybrid devices (such as the Surface Pro): remind them to keep the keyboard attached during the test.

3. Supervising the test

Make sure you walk around and monitor students during the test. Students tend to continue with their test even if something has gone wrong – for example, a question does not display correctly. For this reason, check that pages are loading correctly, and students are scrolling to see all the content and options. It's a good idea to have a paper booklet of the test available during the testing session.

Students are generally expected to read the test content without assistance. Information on accommodations (e.g., reader-writers) is available on the help site.

4. Know what to do if things go wrong

Internet disconnected

If student answers aren't saving, e-asTTle will show a yellow banner at the top of the page. The banner will turn red when there has been disconnection for 2 minutes or more. Students can keep answering whatever they can, and e-asTTle will try and save answers. Don't refresh or close the window if a coloured banner is showing.

If the Internet has been down, use your professional judgement to decide if students' results should be excluded.

Images not loading

If an image is missing, students will see an icon they can click to try and reload the image. 

A question doesn't load fully or looks strange

If something has loaded incorrectly, it can sometimes be corrected by selecting the 'Next' button then the 'Previous' button to reload the question.

Detailed troubleshooting information is available on the help site. To report issues with online testing or for additional assistance, please contact the Education Service Desk: 0800 225 5428.