

Summary

Test Identification

Name	2016 MAT SW 1.5
Date Created	26 Jan 2016
Date Modified	14 Apr 2016
Subject	Mathematics
Status	SCORED
Sequence Number	568440
Total Test Time	57 minutes
Delivery Method	Onscreen

Curriculum Strand

Algebra	14	Statistics	14
Number Sense & Operations	14		

Curriculum Level

5B	15	5P	18	5A	6
6B	4	6P	3	6A	1

Cognitive Processing

Surface	20	Deep	27
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Slider Settings

Strands		Level	
Number Sense & Operations	Most	Level 5	Most
Algebra	Most		
Statistics	Most		

Marking Guide : 2016 MAT SW 1.5

Q.No	Marking Key
1	e
2	b
3	d
4	a
5	c
6	a
7	b
8	b
9	b
10	b
11	d
12	b
13	a
14	a
15	c
16	b
17	c
18	b
19	b
20	a
21	a
22	a
23	a
24	d
25	b
26	d
27	d

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
28	b
29	d
30	b
31	e
32	d
33	c
34	d
35	c
36	c
37	c
38	a
39	c
40	b
41	a
42	a
43	b
44	a
45	b
46	d
47	b

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
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01. I like maths at school.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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02. I am good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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03. My teacher thinks I am good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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04. My Mum and Dad think I am good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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05. I enjoy doing maths in my own time (not at school).

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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06. I enjoy doing things in maths that I haven't tried before.

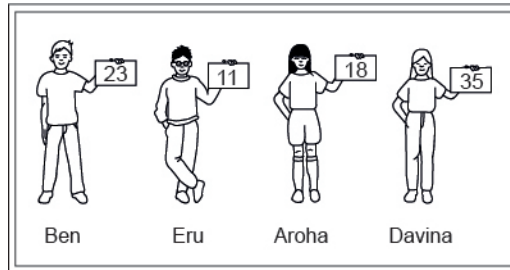
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Practice Questions

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?

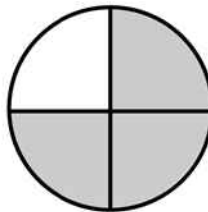


- Ben
- Eru
- Aroha
- Davina

P02. Complete this number pattern.

2, 4, _____, _____, 10

P03. What fraction of this circle is shaded?

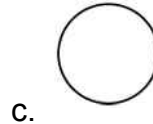
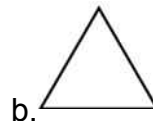




P04. Match the sentence with the correct shape.

1. I have three sides

2. I have 4 sides



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

$$2 + \star > 5$$

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.

In the number 213, the value of 1 is ten.

TRUE

FALSE

In the number 504, the value of 5 is fifty.

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01. A plumber charges customers \$48 for each hour worked plus an additional \$9 for travel.

If h represents the number of hours worked, which of the following expressions could be used to calculate the plumber's total charge in dollars?

- $48 + 9 + h$
- $48 \times 9 \times h$
- $48 + (9 \times h)$
- $(48 \times 9) + h$
- $(48 \times h) + 9$

02. Leena works for the park service. She wanted to estimate the population of a particular species of fish in a park lake. She obtained samples on which to base her estimate by casting a net in each of seven locations in the lake, counting the fish she caught, and then releasing the fish. Her results are shown in the table below.

What is the mean number of fish caught?

Results of Fish Sampling

Location	1	2	3	4	5	6	7
Number of Fish Caught	18	12	18	11	9	13	17

- 13
- 14
- 17
- 18

03. Calculate: $2(5^2 + 2) - 6$

- 16
- 18
- 42
- 48

04. The n^{th} term of the linear pattern defined by the table is given by which expression?

2	4	6	8	n
4	8	12	16	?

- $2n$
- $n + 2$
- $n + 4$
- n^2

05. Which one of the following group numbers contains only perfect squares?

- 1, 25, 81, 111
- 9, 18, 49, 100
- 36, 81, 121, 144
- 25, 36, 111, 141

06. A store is having a '20% off' sale. The normal price of a hi-fi stereo system is \$1250. What is the price of the hi-fi stereo system after the 20% discount is applied?



- \$1000
- \$1050
- \$1230
- \$1500

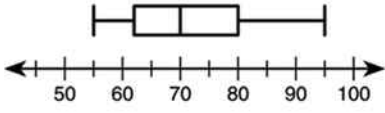
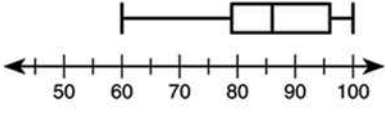
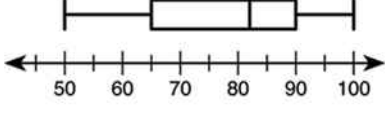
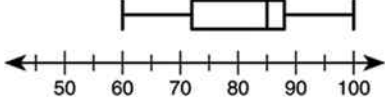
07. Jason bought a jacket on sale for 50% off the original price and another 25% off the discounted price.
If the jacket originally cost \$88, what was the final sale price that Jason paid for the jacket?

- \$22
- \$33
- \$44
- \$66

08. Which expression is equivalent to x^6x^2 ?

- x^4x^3
- x^5x^3
- x^7x^3
- x^9x^3

09. Nicole listed her homework scores from her mathematics class.
100, 97, 95, 80, 88, 84, 96, 60, 78, 83
Which box-and-whisker plot correctly displays the information?

- 
- 
- 
- 

10. Which of the following is the **BEST** estimate of the following product ?

$$13.9624 \times .501$$

- 0
- 7
- 13
- 14

11. Jose counted the number of pretzels in 6 bags of Crunchy Pretzels. The table below shows his results.

What is the range of pretzels found in the bags?

CRUNCHY PRETZELS

Bag	Number of Pretzels
1	97
2	99
3	102
4	96
5	100
6	97

- 3
- 4
- 5
- 6

12. The table below shows the number of blocks Susan walked each day last week. What was the mean (average) number of blocks she walked each day?

Mon.	Tues.	Wed.	Thur.	Fri.
21	18	15	18	13

- 15
- 17
- 18
- 21

13. A light year is approximately 9×10^{12} kilometres. What is another way to write this number?

- 9 000 000 000 000
- 9 000 000 000
- 900 000 000 000
- 90 000 000 000 000

14. Which of the following measurements would **MOST** likely be given with a negative exponent in scientific notation?

- The diameter of a blood cell in centimetres
- The distance to the Sun in kilometres
- The weight of a pencil in grams
- The mass of a rocket in kilograms

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

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

16. The number of goals scored by the College First XI soccer team in their matches last season was 8, 4, 2, 6, 3, 3, 9, 3 and 7. What was their **median** score?

- 3
- 4
- 5
- 7

17. The difference between 85 and 53 is 32. Meredith added some number to 85 and then added the same number to 53. What would be the difference between the two new numbers?

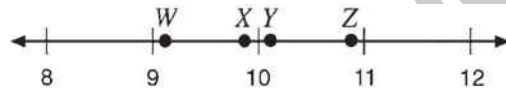
- More than 32
- Less than 32
- 32
- It depends on the number added to 85 and 53

18. According to the pattern suggested by the four examples below, how many consecutive odd integers are required to give a sum of 144?

$$\begin{aligned}1 + 3 &= 4 \\1 + 3 + 5 &= 9 \\1 + 3 + 5 + 7 &= 16 \\1 + 3 + 5 + 7 + 9 &= 25\end{aligned}$$

- 9
- 12
- 15
- 36
- 72

19. Which of the following points on the number line is closest to $\sqrt{94}$?



- W
- X
- Y
- Z

20. Which number is largest?

- $\frac{4}{5}$
- $\frac{3}{4}$
- $\frac{5}{8}$
- $\frac{7}{10}$

21. Which equation is **TRUE** for all pairs of values in this table?

x	y
-3	-7
0	-1
3	5

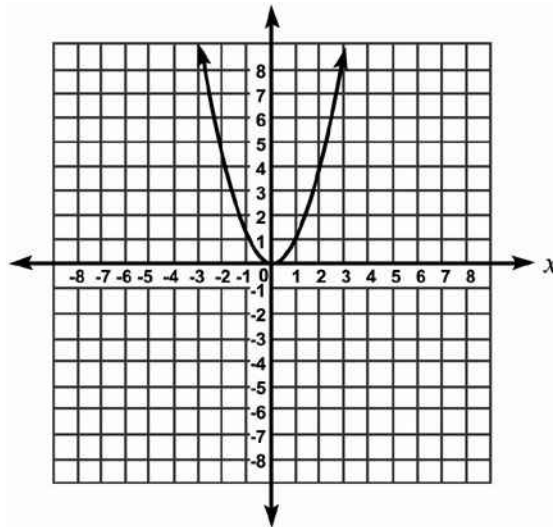
- $y = 2x - 1$
- $y = 2x + 1$
- $y = x - 4$
- $y = x + 2$

22. Which of the following pieces of information would **NOT** be useful in deciding what type of car is the **MOST** economical to drive?

- Median income of drivers
- Range of insurance costs
- Average kilometres per litre
- Typical cost of repairs per year
- Cost of routine maintenance

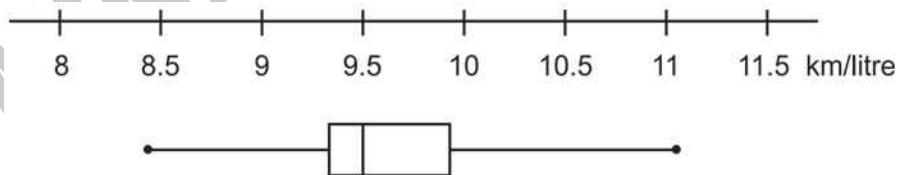
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23. This is a graph of $y = x^2$
 If the graph is moved up 3 units, what equation will it represent?



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

24. The box-and-whisker graph shows the results of a survey of the petrol consumption of 100 car models.
 Which of the statistics - mean, median, mode, range - could be estimated from this graph?



- Mean only
- Median only
- Range and mean
- Range and median

25. Edgar earned the following scores on his first 10 science tests.

73, 86, 91, 87, 88, 79, 82, 93, 90, 86

Which of these will be affected if Edgar earns a score of 50 on his next test?

- Mean, median, and mode
- Mean and median
- Mean only
- Median only

26. Approximately $\frac{1}{3}$ of Hamilton High's 1153 students leave campus for lunch.

Which of the following is closest to the number of students who do **NOT** leave campus for lunch?

- 400
- 600
- 700
- 800

27. The weekly milk order for the Tranquillity Inn includes 40 litres of low-fat milk and 15 litres of chocolate milk.

What is the ratio of the number of low-fat litres to chocolate milk litres in the Tranquillity Inn's weekly milk order?

- 3:1
- 5:1
- 5:3
- 8:3

28. A student conducted a study of the salinity (salt content) of the water in a salt marsh. The table below shows the salinity in parts per thousand (ppt) that the student measured on the first day of each month. Based on the data in the table what was the mean increase per month of the salinity?

Salinity of Salt Marsh Water

Date	Salinity (ppt)
March 1	12
April 1	14
May 1	15
June 1	17
July 1	20
August 1	24
September 1	29
October 1	33

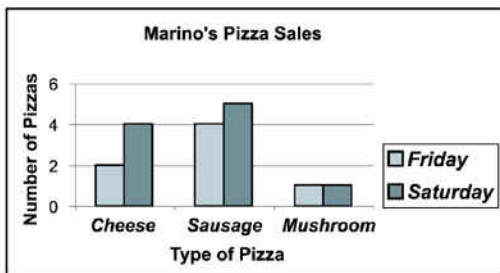
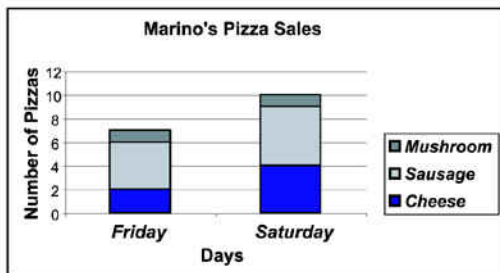
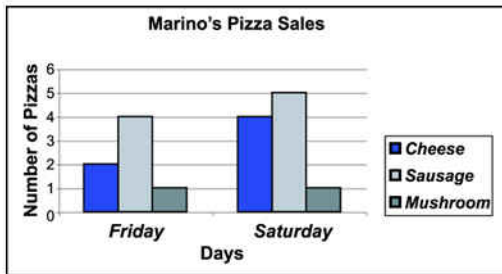
- 2 ppt
- 3 ppt
- 4 ppt
- 5 ppt

29. Approximately $\frac{1}{3}$ of Hamilton High's 1153 students leave campus for lunch. Which of the following is **closest** to the number of students who do **NOT** leave campus for lunch?

- 400
- 600
- 700
- 800

30. 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?



31. Tetsu rides his bicycle x kilometres the first day, y kilometres the second day, and z kilometres the third day.

Which of the following expressions represents the average number of kilometres per day that Tetsu travels?

$x + y + z$

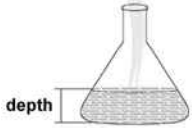
xyz

$3(x + y + z)$

$3(xyz)$

$(x + y + z)/3$

32. Water is poured into this flask at a constant rate.



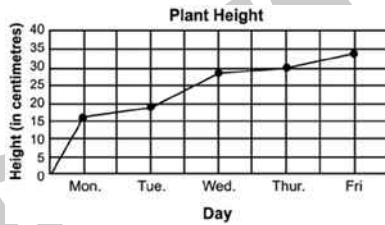
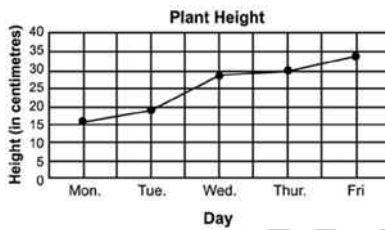
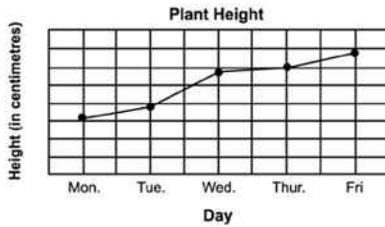
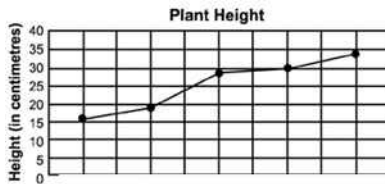
Which one of these graphs could **BEST** represent the depth of water in the flask as it fills?

-
-
-
-

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33. 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



34. Which of the following shows the numbers in order from least to greatest?

$5.7 \times 10^3, 3.9 \times 10^{-2}, 1.8 \times 10^3, 8.2 \times 10^{-2}$

$8.2 \times 10^{-2}, 3.9 \times 10^{-2}, 1.8 \times 10^3, 5.7 \times 10^3$

$1.8 \times 10^3, 3.9 \times 10^{-2}, 5.7 \times 10^3, 8.2 \times 10^{-2}$

$3.9 \times 10^{-2}, 8.2 \times 10^{-2}, 1.8 \times 10^3, 5.7 \times 10^3$

35. A straight line on a graph passes through the point (3, 2) and (4, 4). Which of these points also lies on the line?

- (1, 1)
- (2, 4)
- (5, 6)
- (6, 3)
- (6, 5)

36. The stem-and-leaf plot shows the results of a science experiment in which 12 plants were each given a different combination of water and nutrients over a period of time and their growth in millimetres measured. What was the median number of millimetres of growth?

Millimetres Growth

0	8
1	2 4 4 4 5 7 8
2	2 4 6
3	1

- 14
- 15
- 16
- 17

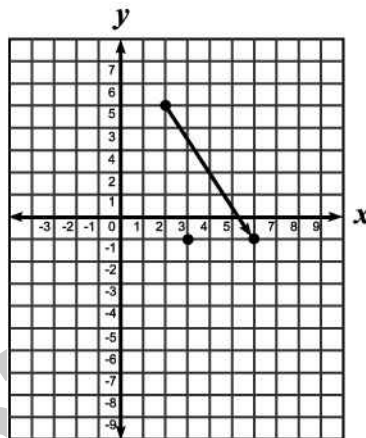
37. 60% of the cars owned by Best Car Rental are white and 30% have a manual transmission.

If you randomly choose a rental car. What is the probability that you will get a white car **with** a manual transmission?

- $\frac{9}{10}$
- $\frac{9}{100}$
- $\frac{18}{100}$
- $\frac{90}{100}$

38. A translation maps the point (2, 5) onto the point (6, -1).

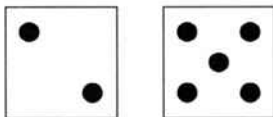
What is the image of the point (3, -1) under the same translation?



- (7, -7)
- (7, -5)
- (-1, -6)
- (-1, -5)

Use the following information to answer question 39.

Ratu and Elsie are playing a game which used two dice. They roll the dice at the same time and calculate the sum of the two numbers that are showing.



For example: results in $5 + 2 = 7$.

39. The probability of rolling the dice to get a sum of 8 is

- $\frac{1}{36}$
- $\frac{3}{36}$
- $\frac{5}{36}$
- $\frac{8}{36}$

End of Section

40. What is $\frac{x^2 - 4xy + 4y^2}{3xy - 6y^2}$ reduced to lowest terms?

- $\frac{x - 2y}{3}$
- $\frac{x - 2y}{3y}$
- $\frac{x + 2y}{3}$
- $\frac{x + 2y}{3y}$

41. If x^2 is added to x , the sum is 42.
Which of the following could be the value of x ?

- 7
- 6
- 14
- 42

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

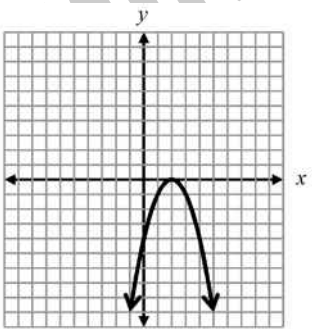
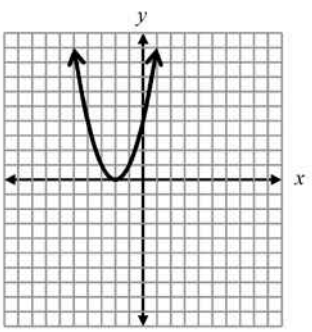
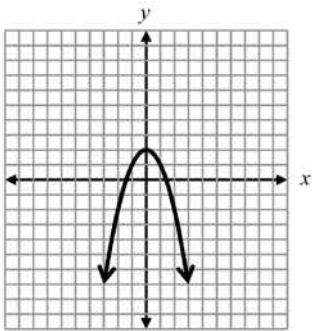
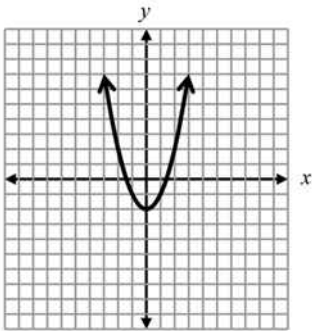
x	-5	0	1	2	3
y	a		5	2	-1	-4

- $a = 20$
- $a = 3$
- $a = 8$
- $a = -10$

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43. Which of the following represents the graph of the equation below?

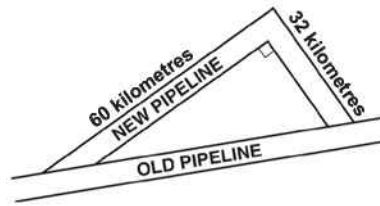
$$y = -x^2 + 2$$



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44. A new pipeline is being constructed to re-route its oil flow around the exterior of a national wildlife reserve. The plan showing the old pipeline and the new route is shown below.

About how many extra kilometres will the oil flow once the new route is established?



- 24
- 68
- 92
- 160

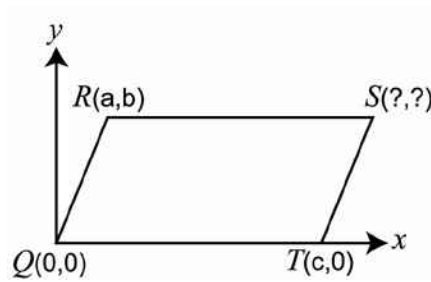
45. There are two numbers with the following properties.

- 1) The second number is 3 more than the first number.
- 2) The product of the two numbers is 9 more than their sum.

Which of the following represents possible values of these two numbers?

- 6, -3
- 4, -1
- 1, 4
- 3, 6

46. $QRST$ is a parallelogram.
What are the coordinates of the vertex S ?



- (c, b)
- $(a + b, c)$
- $(c - a, b)$
- $(c + a, b)$

47. Daniel cleans swimming pools. For a fixed charge of \$50 per month he cleans your pool twice. Extra cleanings cost \$30 each.
Which of these equations represents the cost per month, C , to a customer whose pool is cleaned x times per month?

- $C = 30 + 50x$
- $C = 30(x - 2) + 50$
- $C = 50(2) + 30x$
- $C = (30 + 50)x + 2$

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

- Windows, Mac or Chromebook
- Minimum window width: 1280 pixels
- Windows devices need Internet Explorer 9-11 or recent Edge, Chrome, Firefox
- Windows tablets/hybrids e.g., Surface Pro must have a keyboard attached
- Mac devices need recent Chrome or Safari

Tablet (9"+)

- iPads: iOS8+ with Safari
- Androids: Large tablet e.g., Samsung Galaxy Tab 4. Must have Android 4.4+ 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

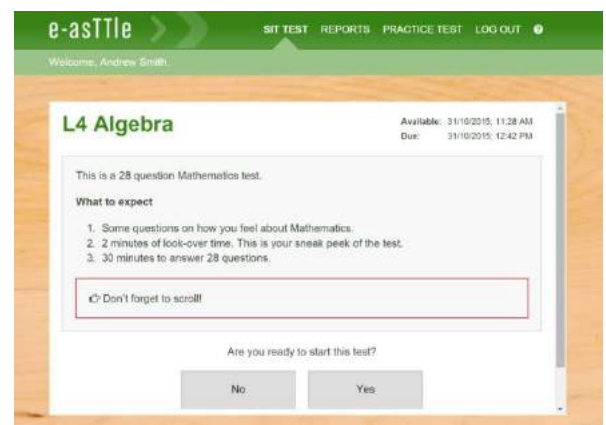
1. Check equipment

- 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.  **INFO MISSING**
[Click to reload](#)

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.