Summary

Test Identification	
Name	2016 MAT SW 1.4
Date Created	26 Jan 2016
Date Modified	12 Apr 2016
Subject	Mathematics
Status	SCORED
Sequence Number	568439
Total Test Time	57 minutes
Delivery Method	Onscreen

Curriculum Strand			
Statistics	10	**Algebra**	9
Number Sense & Operations	10	**Number Knowledge**	10

Curriculum Level					
3B	2	**3P**	4	**3A**	2
4B	9	**4P**	12	**4A**	13
5B	5	**5P**	2	**5A**	2

Cognitive Processing			
Surface	31	**Deep**	20

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

Marking Guide : 2016 MAT SW 1.4

Q.No	Marking Key
1	b
2	d
3	a
4	a
5	b
6	c
7	e
8	Auckland, Wellington, Christchurch, Hamilton, Dunedin 'Must be in order stated in Answer Key.'
9	b
10	a
11	b
12	b
13	a
14	c
15	a
16	c
17	a
18	b
19	b
20	a
21	a
22	c
23	b
24	d
25	144
26	Number= (position in sequence)squared or consecutive square numbers

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
27	c
28	d
29	a
30	a
31	d
32	b
33	d
34	d
35	a
36	d
37	c
38	a
39	c
40	c
41	d
42	a
43	a
44	a
45	a
46	b
47	a
48	a
49	a
50	d
51	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.

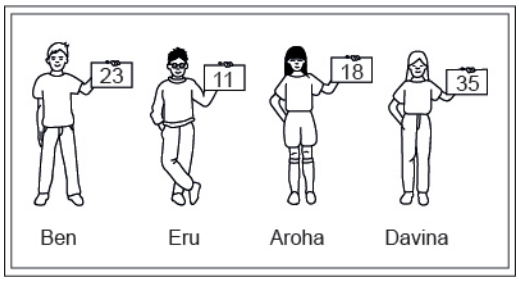
Questions Not Answered: Enter a dash (-).

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 Mum and Dad 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?

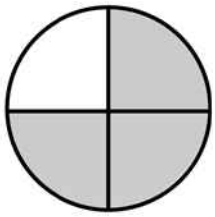


- ⬭ Ben
- ⬭ Eru
- ⬭ Aroha
- ⬭ Davina

P02. Complete this number pattern.

2, 4, ____, ____, 10

P03. What fraction of this circle is shaded?



☐

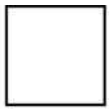
———

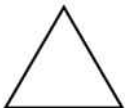
☐

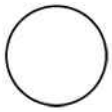
P04. Match the sentence with the correct shape.

☐ 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

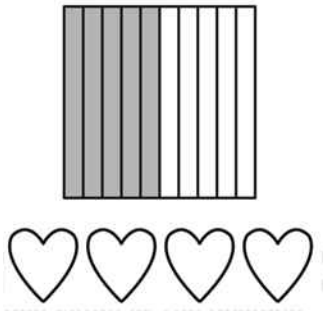
☐ 2

☐ 0

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

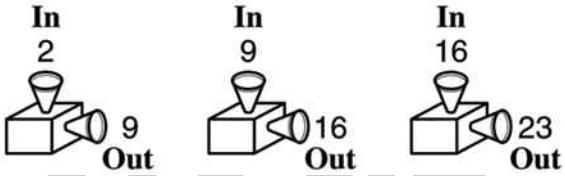
	TRUE	FALSE
In the number 213, the value of 1 is ten.	⬭	⬭
In the number 504, the value of 5 is fifty.	⬭	⬭

01. The figure is shaded to represent a decimal.
How many of the hearts **MUST** be shaded to represent a fraction of the same value?



- ⬭ 1
- ⬭ 2
- ⬭ 3
- ⬭ 4

02. Which describes a rule that the number machine could be using?



- ⬭ Multiply by 4; add 1
- ⬭ Divide by 4; add 1
- ⬭ Subtract 7
- ⬭ Add 7

03. What is a rule used in the table to get the numbers in column *B* from the numbers in column *A*?

Column *A*	Column *B*
12 →	3
16 →	4
24 →	6
40 →	10

- ⬭ Divide the number in column *A* by 4.
- ⬭ Multiply the number in column *A* by 4.
- ⬭ Subtract 9 from the number in column *A*.
- ⬭ Add 9 to the number in column *A*.

04. ___, 0.5, 0.8, ___, 1.4, 1.7
Which numbers, in order, are missing from this sequence?

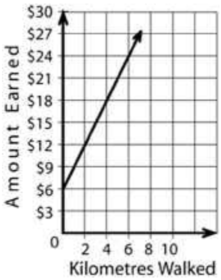
- ⬭ 0.2 and 1.1
- ⬭ 0.2 and 1.2
- ⬭ 0.4 and 0.9
- ⬭ 0.4 and 1.0

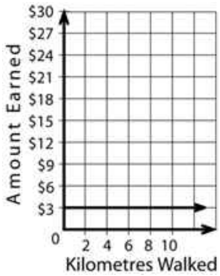
05. 503 - 207 =

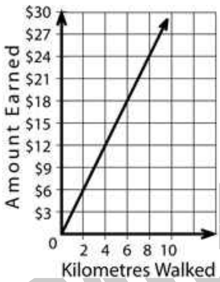
- ⬭ 206
- ⬭ 296
- ⬭ 304
- ⬭ 396

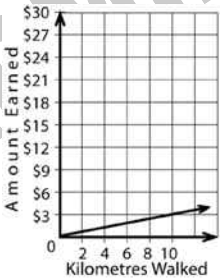
06. Which graph **BEST** illustrates the relationship shown in this table?

Kilometres Walked	Amount Earned
2	$6
4	$12
6	$18
8	$24
10	$30









07. If the value of the expression $x + 2$ is less than 12, which of the following could be a value of x?

- ⬭ 16
- ⬭ 14
- ⬭ 12
- ⬭ 10
- ⬭ 8

Use the following information to answer questions 08 to 09.

The table shows the number of people living in New Zealand's main urban regions in 1996.

REGION	POPULATION
Auckland	991 797
Christchurch	325 251
Dunedin	110 802
Hamilton	158 046
Hastings	58 494
Napier	52 953
Palmerston North	73 860
Rotorua	54 297
Tauranga	82 287
Wellington	334 050

08. List the top five regions in order of population from largest to smallest.

Largest _____
_____
_____
_____
Smallest _____

09. The total population in the three smallest regions is closest to which one of these figures?

- ⬭ 107 000
- ⬭ 166 000
- ⬭ 471 000
- ⬭ 1 651 000

End of Section

10. What number, if placed in each box below, would make both equations **TRUE**?

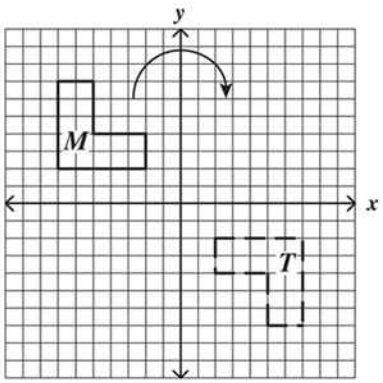
4 x ☐ = ☐ and ☐ x 3 = ☐

- ⬭ 0
- ⬭ 1
- ⬭ 2
- ⬭ 3
- ⬭ 4

11. To make a batch of cookies, you need $1\frac{1}{3}$ cups of flour.
How many cups of flour will be needed for 3 batches?

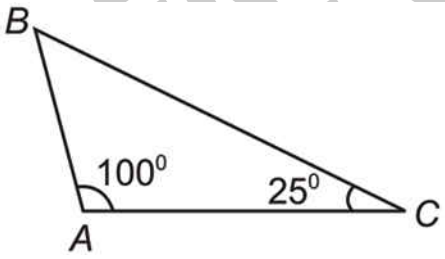
- ⬭ $4\frac{1}{3}$
- ⬭ 4
- ⬭ 3
- ⬭ $2\frac{2}{3}$

12. In the graph below, figure M was rotated clockwise about the origin to generate figure T.
What was the angle of rotation of figure M about the origin?



- ⬭ 90º
- ⬭ 180º
- ⬭ 270º
- ⬭ 360º

13. What is the measure of $\angle B$ in triangle ABC ?



- ⬭ 55°
- ⬭ 80°
- ⬭ 125°
- ⬭ 180°

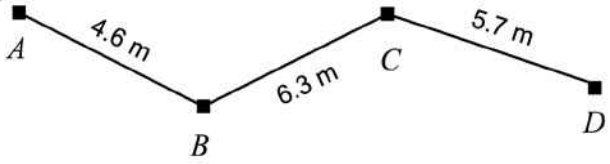
14. Look at the shape below.
How many edges are there in this rectangular prism?

- ⬭ 6
- ⬭ 4
- ⬭ 12
- ⬭ 8

15. Which is a **TRUE** statement?

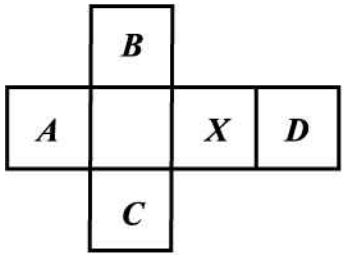
- ⬭ The length of the radius of a circle is one-half the length of the diameter.
- ⬭ The length of the radius of a circle is two times the length of the diameter.
- ⬭ The length of the radius of a circle is one-fourth the length of the diameter.
- ⬭ The length of the radius of a circle is the same as the length of the diameter.

16. Carol wanted to estimate the distance from *A* to *D* along the path shown on the map below. She correctly rounded each of the given distances to the nearest kilometre and then added them.
Which of the following sums could be hers?



- ⬭ 4 + 6 + 5 = 15
- ⬭ 5 + 6 + 5 = 16
- ⬭ 5 + 6 + 6 = 17
- ⬭ 5 + 7 + 6 = 18

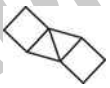
17. The squares in the figure below represent the faces of a cube which has been cut along some edges and flattened.
When the original cube was resting on face *X*, which face was on top?



- ⬭ *A*
- ⬭ *B*
- ⬭ *C*
- ⬭ *D*

18. In art class, Raúl was given the shapes shown below.
Raúl used some of the shapes to make a design that had 2 lines of symmetry.
Which of the following could be his design?

□□□△△△

- ⬭ 
- ⬭ 
- ⬭ 
- ⬭ 

19. Point *X* (not shown) on the number line is 5 units from point *R* and 3 units from point *Q*.
Where is point *X* located?

⬭ Between *O* and *P*

⬭ Between *P* and *Q*

⬭ Between *Q* and R

⬭ To the right of *R*

20. This lists the number of points Cassie's team scored in each of their games. Which of the following stem-and-leaf plots shows this same information?

17	22	39	26	25
33	37	43	18	39
29	50	41	24	48

⬭

Stem	Leaf
1	7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9, 9
4	1, 3, 8
5	0

⬭

Stem	Leaf
1	4, 7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9, 9
4	1, 3, 8
5	

⬭

Stem	Leaf
1	7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9
4	1, 3, 8
5	0

⬭

Stem	Leaf
1	7, 8
2	2, 4, 5, 6, 9
3	3, 7, 9
4	1, 3, 8
5	0

21. 9000 - 3782 =

- ⬭ 5218
- ⬭ 5328
- ⬭ 6782
- ⬭ 12,782

22. This is a stem-and-leaf plot of a group of test scores.
What is the median score?

Stem	Leaf
5	3 4
6	2 4 8
7	0 1 2 5 7 7 9
8	4 5 6 7
9	1 2 4 6

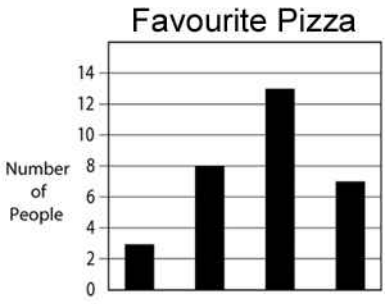
- ⬭ 73
- ⬭ 76
- ⬭ 77
- ⬭ 77.5

23. Shelby asked some friends to name their favourite kind of pizza. She made this tally chart to show their answers.
Which bar graph displays this information correctly?

Favourite Pizza

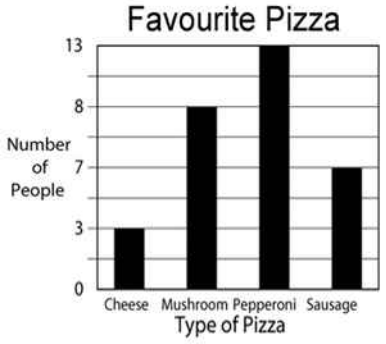
Cheese	|||
Mushroom	𝍸 |||
Pepperoni	𝍸 𝍸 |||
Sausage	𝍸 ||

⬭



⬭

⬭



⬭

24. Mr Rampell gave 9 students a makeup exam. The scores were 79, 68, 100, 79, 84, 92, 68, 100, and 68.
What was the mode of these scores?

- ⬭ 84
- ⬭ 82
- ⬭ 79
- ⬭ 68

Use the following information to answer questions 25 to 26.

Position in sequence	1	2	3	4	5
Number sequence	1	4	9	16	25

25. What is the twelfth number in this sequence?

_____

26. Write a rule that links each number in the sequence.

_____

_____

End of Section

27. An isosceles triangle **MUST** have

- ⬭ 4 sides that are the same length.
- ⬭ 3 sides that are the same length.
- ⬭ 2 sides that are the same length.
- ⬭ No sides that are the same length.

28. Four children measured the width of a room by counting how many paces it took them to cross it. The chart shows their measurements.
Who had the longest pace?

Name	Number of Paces
Stephen	10
Elane	8
Ana	9
Carlos	7

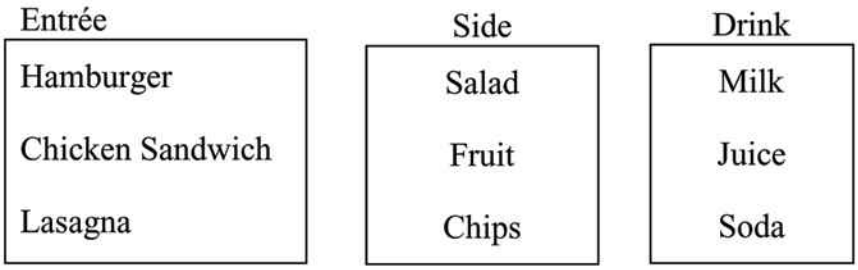
⬭ Stephen

⬭ Elane

⬭ Ana

⬭ Carlos

29. A local restaurant is advertising a combination dinner special. Donna can choose one entrée, one side, and one drink.
According to the menu, from how many different dinner combinations can Donna choose?



⬭ 27

⬭ 18

⬭ 9

⬭ 3

30. Which can be solved using the open sentence $F + 2 = ?$

- There are 2 more drummers in the band than flute players. If F is the number of flute players in the band, how many drummers are there?
- There are 2 fewer trumpet players in the band than flute players. If F is the number of flute players in the band, how many trumpet players are there?
- There are 2 times as many flute players in the band as trombone players. If F is the number of trombone players in the band, how many flute players are there?
- The flute players in the band sit in the first 2 rows. The same number of flute players sit in each row. If F is the total number of flute players in the band, how many sit in each row?

31. The list shows the number of cans each student in Angelo' s class collected for recycling.
Which stem-and-leaf plot below shows this same information?

30	**21**	**12**	**17**	**25**	**18**
35	**30**	**26**	**31**	**14**	**29**
27	**42**	**35**	**20**	**17**	**34**
20	**31**	**21**	**35**	**44**	**17**

Stem	Leaf
1	2, 4, 7, 8
2	0, 1, 5, 6, 7, 9
3	0, 1, 4, 5
4	2, 4

Stem	Leaf
1	2, 4, 7, 8
2	1, 5, 6, 7, 9
3	1, 4, 5
4	2, 4

Stem	Leaf
1	2, 4, 7, 7, 7, 8
2	1, 1, 5, 6, 7, 9
3	1, 1, 4, 5, 5, 5
4	2, 4

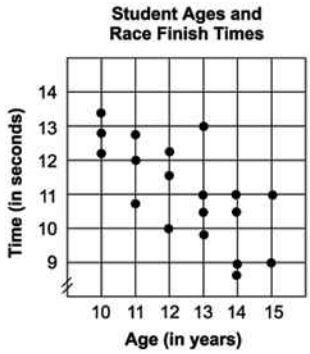
Stem	Leaf
1	2, 4, 7, 7, 7, 8
2	0, 0, 1, 1, 5, 6, 7, 9
3	0, 0, 1, 1, 4, 5, 5 5
4	2, 4

32. Jill wants to make a triangular base pyramid out of marshmallow and toothpicks. She will use a marshmallow for a vertex and a toothpick for an edge.

How many marshmallows and toothpicks will she need?

- ⬭ 4 marshmallows and 8 toothpicks
- ⬭ 4 marshmallows and 6 toothpicks
- ⬭ 5 marshmallows and 8 toothpicks
- ⬭ 5 marshmallows and 7 toothpicks

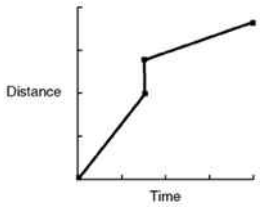
33. In the scatter plot, each dot represents one student who participated in the 50 metre race. Ben is 15 years old.
Based on the information in the scatter plot, what was Ben's time in the race?

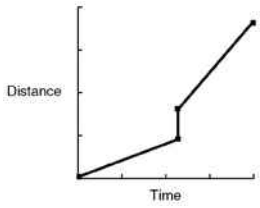


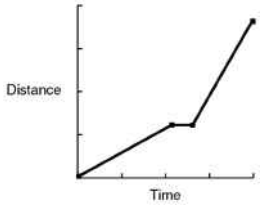
- ⬭ 9 seconds
- ⬭ 10 seconds
- ⬭ 11 seconds
- ⬭ It cannot be determined.

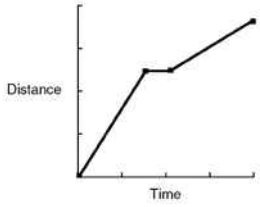
34. Natalie caught the bus from home to a friend's place. She waited there for a few minutes and then walked with her friend to the shops.

Which one of these graphs **BEST** represents Natalie's trip?









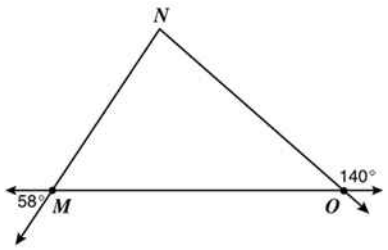
35. Andrea has to find the average age of the population of New Zealand.
The **BEST** way for her to do this would be to:

- use data from the latest Census.
- ask 100 randomly selected adults.
- record the age from all of the death certificates for the previous year.
- obtain the birth date from all of the drivers licenses issued in New Zealand.

36. Which statement must be **TRUE** about a diameter of a circle?

- ⬭ Divides a circle into fourths
- ⬭ Intersects at only one point on the circle
- ⬭ Shortest distance across a circle
- ⬭ Intersects the centre of a circle

37. The measures of some angles are given in this figure.
What is the measure of ∠N?



- ⬭ 40º
- ⬭ 58º
- ⬭ 82º
- ⬭ 122º

38. The chart below shows 10 states and the average length of patient stay in days in each of their hospitals.
Based on the information in the chart, which of the following statements is **TRUE**?

STATE	No. of Hospitals	Average Length of Stay
AL	119	7.0
AK	16	5.7
AZ	61	5.5
AR	88	7.0
CA	440	6.0
CO	71	6.8
CT	35	7.4
DE	8	6.8
FL	227	7.0
GA	162	7.2

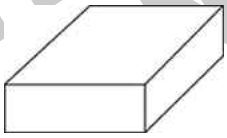
⬭ Five of the states had an average length of stay of at least 7 days.

⬭ Five of the states had an average length of stay of less than 6 days.

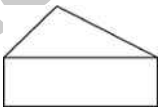
⬭ The state with the fewest hospitals had the shortest average length of stay.

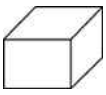
⬭ The state with the most hospitals had the largest average length of stay.

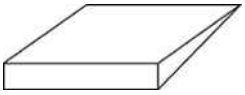
39. The piece of fudge shown below is in the shape of a rectangular solid.
A knife makes one straight cut through the fudge.
Which one of the following can **NOT** be the piece cut off?



⬭ 

⬭ 

⬭ 

⬭ 

40. Megan ordered T-shirts for all the people who registered for next week's charity walk. The table below shows the number of each size T-shirt she ordered.
What was the mean (average) number of shirts ordered per size?

T-Shirts Ordered

Size	Number Ordered
Small	18
Medium	26
Large	26
X-Large	19
XX-Large	11

- ⬭ 15
- ⬭ 19
- ⬭ 20
- ⬭ 26

41. Patrice and Tom need to report the results of a survey regarding the favourite snack food of the students at Milton High School.

How could the experiment be done to produce a random sampling of 100 students?

- ⬭ Ask the students as they get off the school buses.
- ⬭ Ask the opinion of all the teachers at the school.
- ⬭ Ask all the students who are in the school cafeteria during one day.
- ⬭ Ask every 20th student on the school roll until 100 students have been asked.

42. A company bought a truck priced at $50 000.
If the truck loses $2400 in value each year, after how many years will it be worth exactly $30 800?

- ⬭ 8 years
- ⬭ 12 years
- ⬭ 13 years
- ⬭ 21 years

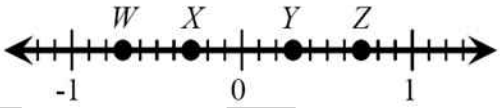
43. Josh rounded the number 36 796 to the nearest ten, to the nearest hundred, to the nearest thousand, and to the nearest ten-thousand.
Which two roundings should have produced the same number?

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

44. Which group of numbers contains ***only*** prime numbers?

- ⬭ 2, 3, 13
- ⬭ 3, 9, 13
- ⬭ 9, 12, 13
- ⬭ 2, 3, 4

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



- ⬭ W
- ⬭ X
- ⬭ Y
- ⬭ Z

46. 125% is the same as

- ⬭ 0.125
- ⬭ 1.25
- ⬭ 12.5
- ⬭ 125.0

47. What is the prime factorisation of 12?

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

48. Which of the following lists the numbers in order from least to greatest?

- ⬭ $17.3\ \%,\ 17.33,\ 17\frac{1}{3},\ 17.34$
- ⬭ $17.33,\ 17\frac{1}{3},\ 17.3\ \%,\ 17.34$
- ⬭ $17.34,\ 17.33,\ 17\frac{1}{3},\ 17.3\ \%$
- ⬭ $17.3\ \%,\ 17.33,\ 17.34,\ 17\frac{1}{3}$

49. Which one of the following represents 72 written as a product of powers of its prime factors?

- ⬭ $2^3 \times 3^2$
- ⬭ $2^1 \times 6^2$
- ⬭ $2^2 \times 3^3$
- ⬭ 9×2^3

50. Ms Thierry and 3 friends ate dinner at a restaurant. The bill was $67. In addition, they left a $13 tip.
Approximately what percent of the total bill did they leave as a tip?

- ⬭ 10%
- ⬭ 13%
- ⬭ 15%
- ⬭ 20%
- ⬭ 25%

51. Arrange from smallest to largest:
$2,\ 2\frac{3}{4},\ \frac{8}{3},\ 2.6$

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

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	Tablet (9"+)
• 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	• 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

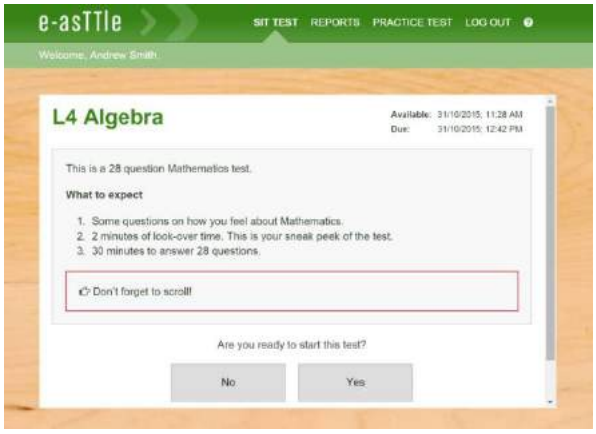
1. Check equipment

- 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. 

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.