

Summary

Test Identification

Name	2023 MAT SW 1.4
Date Created	30 Jan 2023
Date Modified	16 Mar 2023
Subject	Mathematics
Status	SCORED
Sequence Number	1301138
Total Test Time	58 minutes
Delivery Method	Onscreen

Curriculum Strand

Number Sense & Operations	12	Number Knowledge	13
Statistics	12	Algebra	15

Curriculum Level

3B	2	3P	4	3A	2
4B	8	4P	11	4A	16
5B	1	5P	4	5A	3

Cognitive Processing

Surface	26	Deep	25
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Slider Settings

Strands		Level	
Number Knowledge	Most	Level 3	Few
Number Sense & Operations	Most	Level 4	Most
Algebra	Most	Level 5	Few
Statistics	Most		

Marking Guide : 2023 MAT SW 1.4

Q.No	Marking Key
<u>1</u>	60
<u>2</u>	2/5 or 3/5 'either answer acceptable for 1 mark'
<u>3</u>	b
<u>4</u>	a
<u>5</u>	709 'Accept 703 + 6'
<u>6</u>	a
<u>7</u>	2
<u>8</u>	c
<u>9</u>	c
<u>10</u>	d
<u>11</u>	b
<u>12</u>	d
<u>13</u>	c
<u>14</u>	c
<u>15</u>	a
<u>16</u>	c
<u>17</u>	c
<u>18</u>	b
<u>19</u>	b
<u>20</u>	d
<u>21</u>	d
<u>22</u>	d
<u>23</u>	b
<u>24</u>	b
<u>25</u>	b
<u>26</u>	3, 2, 4, 1 'all in order for one mark'
<u>27</u>	a
<u>28</u>	a
<u>29</u>	d
<u>30</u>	a
<u>31</u>	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
32	27+9=36 or 36-27=9 or 36-9=27
33	d
34	b
35	b
36	d
37	d
38	b
39	d
40	c
41	c
42	d
43	d
44	Movies: 0.25, \$10.00 'Both required for 1 mark.'
45	Popcorn: 0.2, \$8.00 'Both required for 1 mark.'
46	Drink: 0.05, \$2.00 'Both required for 1 mark.'
47	524 metres
48	d
49	d
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
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01. It is very important to me to be good at maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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02. I try to get more maths answers right than my friends.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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03. I like hard, challenging maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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04. I do as much school work as possible in maths.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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05. I like to help my friends with their maths school work.

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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06. I like it when the maths examples are hard.

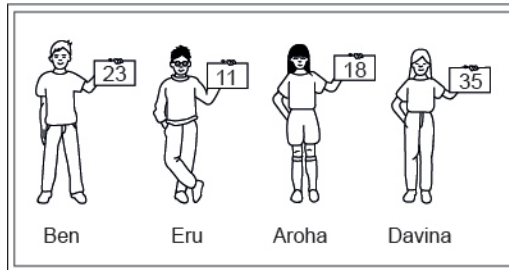
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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ADMINISTER ON SCREEN ONLY

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?

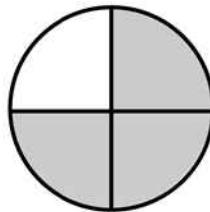


- Ben
- Eru
- Aroha
- Davina

P02. Complete this number pattern.

2, 4, _____, _____, 10

P03. What fraction of this circle is shaded?

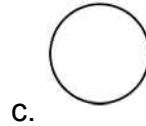
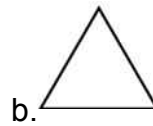




P04. Match the sentence with the correct shape.

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.

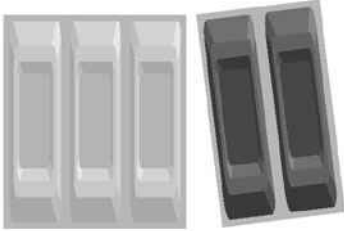
ADMINISTER ON SCREEN
ONLY

01. Merepeka is 5 years old today.
There are 12 months in a year.

How many months old is Merepeka?

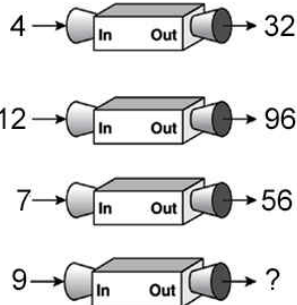
_____ months

02. This block of chocolate is made up of five smaller pieces.



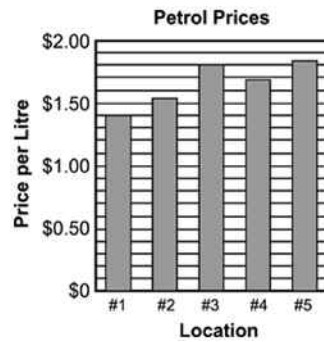
What fraction of the block has been removed?

03. A function machine uses a rule to change numbers into other numbers. The picture below shows what happened when the numbers 4, 12 and 7 went into the machine. What number will come out of the machine if the number 9 goes into it?



- 63
- 72
- 81
- 90

04. On Saturday, Joseph compared the price of one litre of regular petrol at five different locations. The graph below shows the prices he recorded. Which is **closest** to the price of one litre of petrol at location #5?



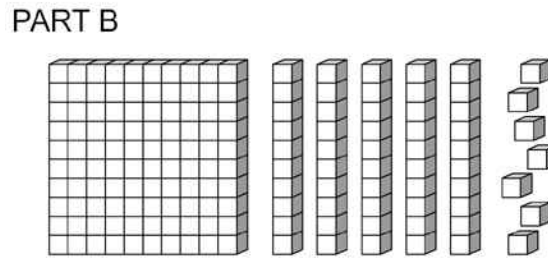
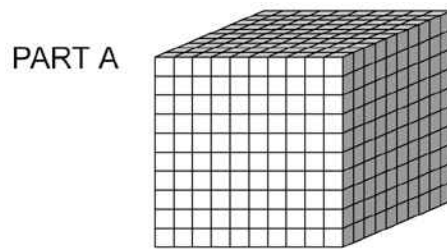
- \$1.82
- \$1.75
- \$1.53
- \$1.08

05.

$$37 \times \blacksquare = 703$$

What is the value of $37 \times \blacksquare + 6$?

06. Part A represents the number 1.
What number is represented by Part B?



- 0.157
- 0.175
- 0.517
- 0.571

07. Fill in the box to make this number sentence **TRUE**.

$$3 \times \square + 7 = 13$$

08. Each time Rosa takes her dog for a check-up, Dr Azim records the dog's weight. Which of the following is the **BEST** way for the doctor to record the dog's weight at each check-up in order to see any changes in the weight?

- Pictogram
- Tally chart
- Line graph
- Circle graph

09. Which of these means $\frac{7}{10}$?

- 70
- 7
- 0.7
- 0.07

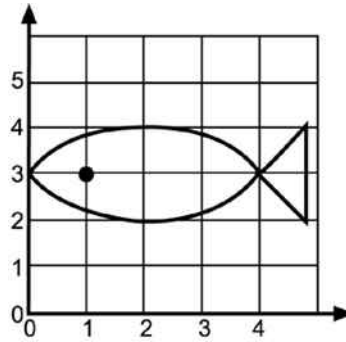
10. A butcher wrote these weights on four packages of meat.
Which was the lightest package?

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

11. A taxi charges \$2.00 for up to and including the first kilometre, and \$1.60 for each kilometre thereafter.
What would the taxi charge for a trip of 4 kilometres?

- \$6.40
- \$6.80
- \$8.00
- \$8.40

12. In the figure below, which **BEST** describes the location of the eye of the fish?



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

13. Emma shared 22 pens equally among herself and three friends.
Emma also kept the leftover pens.
How many did she then have altogether?

- 4
- 5
- 7
- 8

14. The same rule is applied to each number in the pattern below.
1, 9, 25, 49, 81, ...
What is the 6th number in the pattern?

- 40
- 100
- 121
- 144
- 169

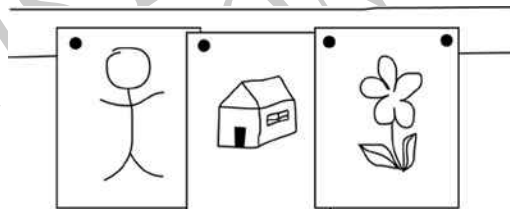
15. Carol is conducting an experiment to see which colour of sweetened water will attract more hummingbirds. Her first step is to formulate questions necessary for data collections. Which of the following questions is **NOT** necessary to collect the data?

- How many times per minute do hummingbirds' hearts beat?
- What distance above the ground should the feeders be hung?
- For how many hours should Carol collect the data?
- How much sugar should be mixed with the water in each feeder?

16. Which is **TRUE**?

- $1.3749 < 1.0399$
- $1.526 < 1.2605$
- $1.7908 < 1.879$
- $1.463 < 1.3902$

17. Children's pictures are to be hung in a line as shown in the figure below. Pictures that are hung next to each other share a tack. How many tacks are needed to hang 28 pictures in this way?



- 27
- 28
- 29
- 56

18. Jackie collected 3 less than twice the number of cans Chad collected for recycling.

If c represents the number of cans Chad collected, what is an expression for the number of cans collected by Jackie?

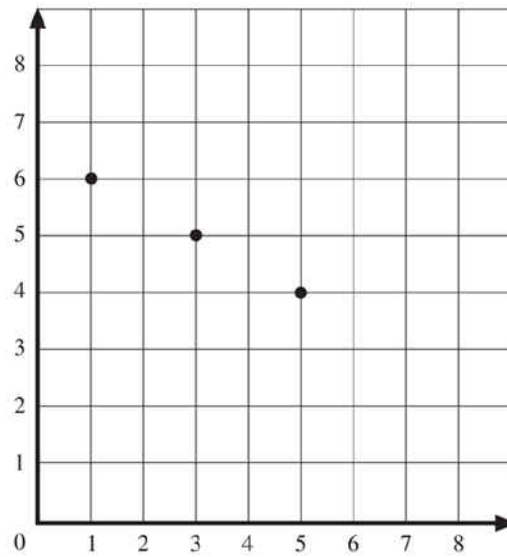
- $3 + 2 \times c$
- $2 \times c - 3$
- $c + 2 \times c - 3$
- $c + c + 2 \times c$

19. What is the prime factorisation of 45?

- $2^3 \times 5$
- $3^2 \times 5$
- $5^2 \times 3$
- $5^2 \times 9$

ADMINISTER ON SCREEN
ONLY

20. Chu plotted 3 points on a grid. The 3 points were all on the same straight line. If she plots another point on the line, what could be its coordinates?



- (2, 5)
- (4, 4)
- (6, 3)
- (7, 3)

21. The table shows the annual profit for five companies. Which statement is valid about the annual profits of these five companies?

2003 Profits

Company	Profit
I	\$300 000
II	\$275 000
III	\$250 000
IV	\$325 000
V	\$300 000

- Companies II and V made the same profit.
- No company made less than \$275 000 profit.
- No company made more than \$300 000 profit
- Company IV made \$75 000 more profit than Company III.

Use the following information to answer question 22.



22. Allie has \$32.50.

Which is the **BEST** estimate of the heaviest item she can ship?

- 50 kg
- 45 kg
- 20 kg
- 15 kg
- 10 kg

End of Section

23. Which of these could be solved by using the open sentence $A - 5 = ?$

- Janis is 5 years older than Seth. If A is Seth's age in years, how old is Janis?
- Todd is 5 years younger than Amelia. If A is Amelia's age in years, how old is Todd?
- Isaac is 5 times as old as Bert. If A is Bert's age in years, how old is Isaac?
- Nathan is one-fifth as old as Leslie. If A is Nathan's age, how old is Leslie?

24. Solve
 $y + 2 = -8$

- $y = -16$
- $y = -10$
- $y = -6$
- $y = -4$

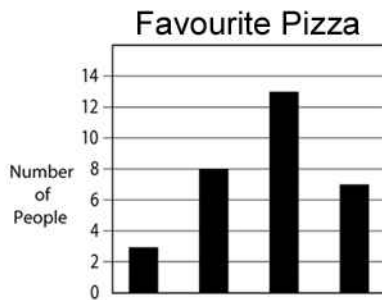
ADMINISTER ONSCREEN
ONLY

25. 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?

Cheese	
Mushroom	///
Pepperoni	/// //
Sausage	///

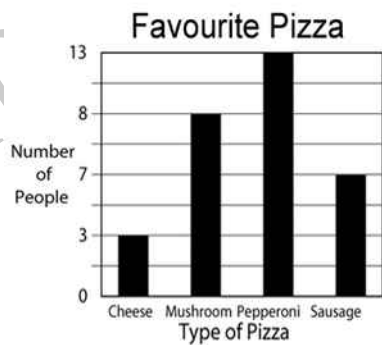
○



○



○



○



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

- | | |
|----------------------|-------|
| <input type="text"/> | 2.107 |
| <input type="text"/> | 2.077 |
| <input type="text"/> | 2.7 |
| <input type="text"/> | 2.017 |

27. Shannon read that fourteen thousand, nine hundred and eighty-seven people live in Dukes County.

Which of the following is another way to write this number?

- 10 000 + 4000 + 900 + 80 + 7
- 14 000 987
- $14 \times 100 + 9 \times 10 + 87$
- $1 + 4 + 9 + 8 + 7$

28. 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?

29. Which is equivalent to $9 - 2^3$?

- 343
- 4
- 3
- 1

30. What is the difference between the smallest positive 3-digit number and the largest positive 2-digit number?

- 1
- 9
- 10
- 90
- 900

31. The percent scores for 5 tests are listed below.

45, 62, 76, 78, 99

Which statement about the data is **MOST** reasonable?

- The mean is close to 50
- The mean is close to 54
- The mean is close to 70
- The mean is close to 80

32. Write a number sentence to show how to solve the problem below.

Be sure to include the answer in your number sentence.

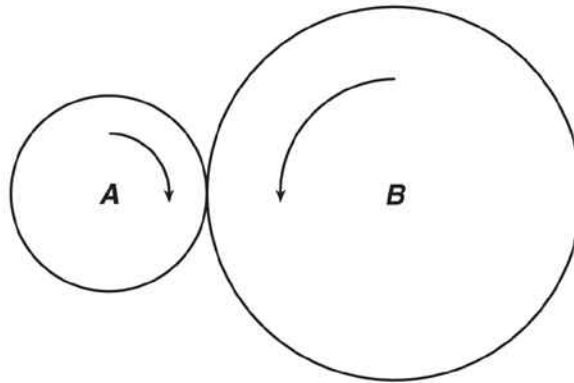
Marianne has 27 baseball cards. Dave has 36 baseball cards.

How many more baseball cards does Dave have than Marianne?

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

- Survey 100 randomly selected civic centre board members.
- Survey 100 randomly selected Auckland residents.
- Survey 100 randomly selected Whangarei residents.
- Survey 100 randomly selected Northland residents.

34. When wheel *B* turns 2 revolutions, wheel *A* turns 5 revolutions. When wheel *A* turns 40 revolutions, how many revolutions does wheel *B* turn?

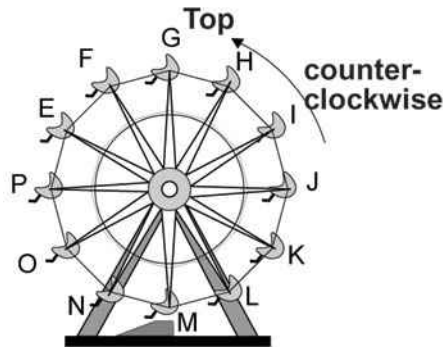


- 4
- 16
- 80
- 100

35. Speedy Rentals will rent a jet ski for \$15.00 plus \$3.00 per hour. Which equation expresses *C*, the cost of renting a jet ski and riding it for *h* hours?

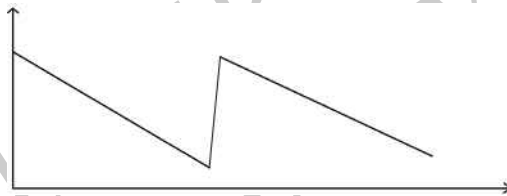
- $C = 15h + 3$
- $C = 15 + 3h$
- $C = 3(15 + h)$
- $C = 15(h + 3)$

36. The spokes on the Ferris wheel are evenly spaced.
 After $2\frac{1}{4}$ complete turns how many degrees will car M have travelled?



- 90°
- 225°
- 450°
- 810°

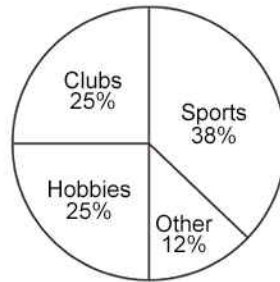
37. Which of the following real-world situations could **BEST** be modelled by the following graph?



- The height of a person growing from child to adult
- The temperature of a cake after it is taken out of the oven
- The height of an airplane landing on a runway
- The amount of petrol in a car tank during a long trip

38. There are 1200 students enrolled in Arapawa Intermediate School. According to the graph below, how many of these students participate in sports?

STUDENT PARTICIPATION IN
ACTIVITIES AT ARAPAWA INTERMEDIATE SCHOOL



- 380
- 456
- 760
- 820
- 1162

39. 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.

40. Jake starts his baseball card collection with 15 cards and buys more each week. The number of cards he owns can be modelled using the expression $15 + 10x$, where x is the number of weeks Jake has been buying baseball cards. What happens to the number of cards in Jake's collection?

- His collection increases by 25 cards each week.
- His collection increases by 15 cards each week.
- His collection increases by 10 cards each week.
- His collection increases by 10 times the previous week's total.

41. Which of the following sets of numbers represents an infinite set?

- {Natural numbers between 0 and 10}
- $\{\frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}\}$
- {Whole numbers}
- {10, 9, 8}

42. Jupiter is approximately 7.78×10^8 kilometres from the sun. Written as a whole number, the distance is

- 77 880 000 km
- 77 800 000 km
- 778 108 000 km
- 778 000 000 km

43. 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 44 to 46.

Henri earned \$40 a week on his paper run.

During the week he used his money on savings, movies, popcorn and drinks.

Complete each question to show how Henri used his money, like this example for his Savings Account.

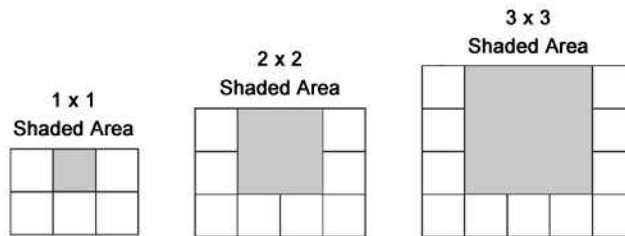
	Fraction	Decimal	\$
Savings Account	$\frac{1}{2}$	0.5	\$20.00
44. Movies	$\frac{1}{4}$	_____	_____
45. Popcorn	$\frac{1}{5}$	_____	_____
46. Drinks	$\frac{1}{20}$	_____	_____

47. The lowest point of the St Lawrence River is 98 metres below sea level. The top of Mt Jacques Cartier is 426 metres above sea level.

How many metres higher is the top of Mt Jacques Cartier than the lowest point of the St Lawrence River?

48. Each figure below shows the number of concrete blocks needed to border 3 sides of a shaded area.

If the pattern continues, which of the following expressions represents the number of concrete blocks needed to border 3 sides of an $n \times n$ shaded area?

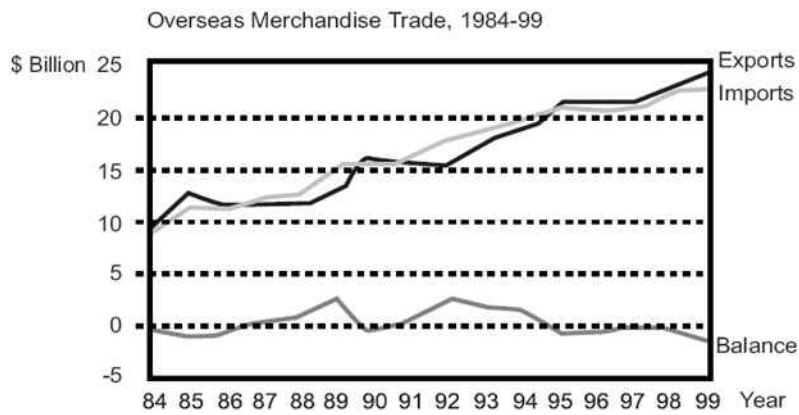


- $5n$
- n^3
- $3n$
- $3n + 2$

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

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

Use the following information to answer question 50..



50. In the Overseas Merchandise Trade graph, how is the Balance related to the Exports and Imports?

- Imports = Balance - Exports
- Exports = Imports + Balance
- Balance = Exports + Imports
- Balance = Imports - Exports

51. 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

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 up-to-date Chrome, Edge or Firefox
- Windows tablets/hybrids e.g., Surface Pro must have a keyboard attached
- Mac devices need up-to-date Safari or Chrome

Tablet (9"+)

- **iPads:** The 2 most recent major iOS versions are supported. Students must use Safari.
- **Androids:** The 2 most recent major Android versions are supported. Students must use up-to-date 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

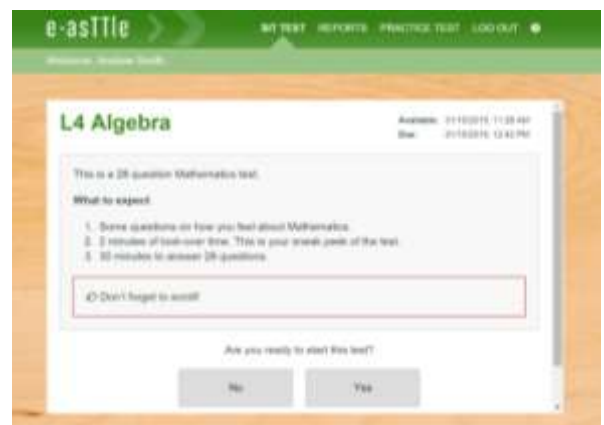
- Make sure students' devices are charged.
- Make sure students have scrap paper and a pen/pencil for working, calculators (if needed) and a quiet activity they can continue with if they finish early.

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.