

## ***Results of Primary 6 Mathematics in Territory-wide System Assessment 2023***

The percentage of P.6 students achieving Mathematics Basic Competency in 2023 is 78.3%.

### ***Primary 6 Assessment Design***

The assessment tasks for P.6 were based on the *Basic Competency Descriptors for Key Stage 2 Mathematics Curriculum* and the *Mathematics Education Key Learning Area Curriculum Guide (Primary 1 – Secondary 6) (2017)*. The tasks covered the five strands of the Mathematics curriculum, i.e. Number, Measures, Shape & Space, Data Handling and Algebra.

The Assessment assumed students had already mastered the Basic Competencies covered in Key Stage 1 (Primary 1 to 3) and therefore focused primarily on the basic and important areas of the Key Stage 2 (Primary 4 to 6) curriculum, testing the concepts, knowledge, skills and applications relevant to these areas.

The Assessment consisted of various item types including multiple choice, fill in the blanks, solutions with working steps (or equations) required, as well as constructing statistical charts, with item types varying according to the context. Some of the items consisted of sub-items. Besides finding the correct answers, students were also tested on their ability to present the solutions to problems, including writing out the necessary statements, mathematical expressions, equations and explanations.

The Assessment consisted of 101 test items (135 score points) covering all of the 54 Basic Competency Descriptors of the five strands. These items were grouped into four sub-papers, each 50 minutes in duration and covering all five strands. Some items appeared in more than one sub-paper to act as inter-paper links and to enable the equating of test scores. Each student was required to attempt only one of the four sub-papers. The number of items in the various sub-papers is summarized in Table 8.4. These numbers include overlapping items.

**Table 8.4 Number of Items and Score Points for P.6**

Subject	Number of Items (Score Points)				
	Paper 1	Paper 2	Paper 3	Paper 4	Total *
<b>Mathematics</b>					
Written Paper					
Number	19 (23)	18 (22)	19 (23)	19 (23)	49 (61)
Measures	8.5 (10)	10 (11)	9.5 (11)	9.5 (11)	26 (30)
Shape and Space	4.5(7)	4 (7)	4.5 (7)	4.5 (7)	10 (16)
Data Handling	3 (6)	3 (6)	3 (6)	3 (6)	8 (16)
Algebra	4 (6)	4 (6)	3 (5)	3 (5)	8 (12)
Total	39 (52)	39 (52)	39 (52)	39 (52)	101 (135)

\* Items that appear in different sub-papers are counted once only.

## ***Performance of Primary 6 Students Achieving Basic Competency in 2023***

### **P.6 Number Strand**

The performance of students in the Number Strand was quite good. Students generally understood the basic concepts and skills including the place values in whole numbers, the highest common factor and the least common multiple of two numbers, interconversion between fractions, decimals and percentages, comparison of the magnitude of fractions and decimals as well as performing the four arithmetic operations. Their performance was fair in solving problems involving fractions or percentages. However, students were weak in identifying prime numbers and composite numbers. A small proportion of them confused common factors with common multiples and did not completely understand the place values of decimals. Further comments on their performance are provided below with examples from different sub-papers quoted in brackets.

#### ***Multi-digit Numbers***

- Most students mastered the concept of place values (e.g. Q1/M2).
- Most students were able to arrange numbers in ascending order (e.g. Q1/M1).


#### ***Multiples and Factors***

- The majority of students demonstrated recognition of multiples and factors (e.g. Q2/M1, Q2/M4).

- Students were weak in identifying prime numbers and composite numbers (e.g. Q2/M2).

Q2/M2

以下哪些數是質數？  
(圈出所有答案)



- Some students were not able to use the listing method to find all the factors of a number (e.g. Q3/M2).

Q3/M2

列出 16 的所有因數。

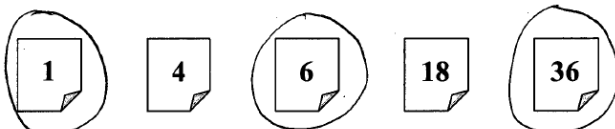
答案： 1, 2, 4, 8

答案： 1, 2, 8, 16

- Quite a number of students could demonstrate recognition of common factors (e.g. Q3/M1) and find the common multiples of two numbers (e.g. Q4/M3). However, a small proportion of students confused common factors with common multiples. A very small proportion of students neglected that 1 is also a common factor of the two numbers.

Q3/M1

以下哪些數是 12 和 18 的公因數？  
(圈出所有答案)



- Many students could find the highest common factor (H.C.F.) (e.g. Q5/M3) and the least common multiple (L.C.M.) of two numbers (e.g. Q4/M1). However, a small proportion of students confused the highest common factor (H.C.F.) with the least common multiple (L.C.M.) in Q4/M1 and chose the incorrect option A.

Q4/M1

以下哪個數是 9 和 15 的最小公倍數 (L.C.M.) ?

- A. 3  
 B. 45  
 C. 90  
 D. 135

### Fractions

- The majority of students were good at performing the interconversion between an improper fraction and a mixed number (e.g. Q5(a)/M1, Q5(a)/M2).
- The majority of students could grasp the concept of equivalent fractions (e.g. Q5(b)/M1, Q5(b)/M2).
- Many students were able to compare the magnitude of fractions (e.g. Q6/M1).

Q6/M1

Arrange the following numbers from the largest to the smallest.

$$1\frac{5}{12}, \quad \frac{8}{9}, \quad \frac{11}{6}$$

Answer:  $\boxed{\frac{11}{6}}$ ,  $\boxed{1\frac{5}{12}}$ ,  $\boxed{\frac{8}{9}}$   
 (Largest) (Smallest)

### Decimals

- The majority of students were able to record numbers with decimals (e.g. Q7/M2).
- Quite a number of students demonstrated recognition of the place values in decimals.

However, a small proportion of students confused the ‘thousands place’ with the ‘thousandths place’ (e.g. Q7/M1). A few students mistook the ‘tenths place’ for the ‘hundredths place’ or the ‘thousandths place’ (e.g. Q6/M4).

Q7/M1	Q6/M4
<p>以下哪個數中的「3」是在千分位？</p> <p><input checked="" type="radio"/> A. 73 019</p> <p><input type="radio"/> B. 19.037</p> <p><input type="radio"/> C. 9.3701</p> <p><input type="radio"/> D. 7.0139</p>	<p>在 3.951 這個數中，數字「9」代表的數值是多少？</p> <p><input type="radio"/> A. 900</p> <p><input type="radio"/> B. <math>\frac{9}{1000}</math></p> <p><input checked="" type="radio"/> C. <math>\frac{9}{100}</math></p> <p><input type="radio"/> D. <math>\frac{9}{10}</math></p>

- Generally, students were capable of converting decimals into fractions (e.g. Q8/M1) and fractions into decimals (e.g. Q8/M3). In Q8/M3, a small proportion of students were unable to use the ‘rounding’ method to obtain approximate values for their answers.

Q8/M3
<p>化 <math>\frac{6}{11}</math> 為小數，答案取至小數點後兩個位。</p> <p>答案： <u>0.54</u></p>

- The majority of students were able to compare the magnitude of decimals (e.g. Q9/M3).

### Percentages

- The majority of students demonstrated recognition of percentages (e.g. Q9/M1).
- The majority of students were capable of converting fractions into percentages (e.g. Q10(a)/M1) and converting percentages into fractions (e.g. Q10(a)/M3).
- The majority of students were able to perform the interconversion between a percentage and a decimal (e.g. Q10(b)/M1, Q10(b)/M3).

**Four Arithmetic Operations**

- Students performed quite well in the four arithmetic operations of whole numbers (e.g. Q11/M1, Q10/M2, Q11/M3). A minority of students neglected the computation rule of ‘doing division before addition’ in performing the mixed operations of division and addition so that they chose the incorrect option B in Q11/M3.

Q11/M3
$70 + 735 \div 7 =$ <input type="radio"/> A. 175 <input checked="" type="radio"/> B. 115 <input type="radio"/> C. 105 <input type="radio"/> D. 85

- Students in general could perform the four arithmetic operations of fractions (e.g. Q12/M1, Q13/M1, Q11/M2, Q12/M2, Q12/M3, Q13/M4).
- The majority of students were able to perform the four arithmetic operations of decimals (e.g. Q14/M1, Q14/M3, Q15/M3, Q15/M4). However, some students were weaker in dividing a whole number by a decimal (e.g. Q15/M1).

Q15/M1
$4 \div 3.5 = \frac{0.11}{\hspace{1.5cm}}$ (答案取至小數點後兩個位)

**Solving Problems**

- The performance of students was quite good in solving problems involving the four arithmetic operations of whole numbers, including using brackets (e.g. Q15/M2, Q19/M3).
- Many students could solve problems involving the four arithmetic operations of fractions (e.g. Q16/M1, Q17/M1, Q16/M2, Q16/M3, Q19/M4). In Q19/M4, a minority of students mistook the amount of pocket money spent for the answer. A very small proportion of students wrongly performed subtraction of the numbers

provided in the question.

Q19/M4	
<p>子樂有零用錢 780 元，他用去全部的 <math>\frac{5}{6}</math>，然後把剩餘的儲蓄起來。子樂儲蓄了多少元？</p>	
$780 \times \frac{5}{6}$ $= \overset{150}{780} \times \frac{5}{6}$ $= 750$ <p>子樂儲蓄了 750 元</p>	$780 - \frac{5}{6}$ $= 300$ <p>子樂儲蓄了 300 元</p>

- The majority of students were able to solve problems involving the four arithmetic operations of decimals (e.g. Q18/M1, Q18/M2, Q17/M3). In Q18/M2, although students could write the correct mathematical expression, a small proportion of them made mistakes in their calculations and got the wrong answers. A minority of students missed the brackets in writing the mathematical expression.

Q18/M2	
<p>店員把 2.75 L 紅茶和 0.5 L 牛奶混合製成奶茶，然後把奶茶每 0.25 L 倒進一個杯子，共可製成奶茶多少杯？</p>	
$(2.75 + 0.5) \div 0.25$ $= 2.8 \div 0.25$ $= \underline{\underline{1.2}}$ <p>共可製成奶茶 1.2 杯。</p>	$2.75 + 0.5 \div 0.25$ $= 3.25 \div 0.25$ $= 13$ <p>He can make 13 cups of milk tea altogether.</p>

- The performance of students was fair in solving problems on percentages (e.g. Q19/M1, Q17/M2). In Q17/M2, some students could not find the correct percentage.

Q17/M2

一束花有 12 枝，其中 6 枝是玫瑰，3 枝是百合。

玫瑰和百合佔全部花的   9   %。

- Most students were able to estimate the answer by choosing suitable approximate values (e.g. Q18/M4).

## P.6 Measures Strand

Students performed quite well in the Measures Strand. In general, many students mastered the basic knowledge and concepts. They were able to find the perimeters of squares and rectangles, the areas of 2-D shapes and the volumes of cubes and cuboids. They could demonstrate recognition of the relationship between capacity and volume, and solve simple problems of speed. However, some students mixed up perimeter, area and volume. Their performance was relatively weak in measuring the sizes of angles. Further comments on their performance are provided below with examples from different sub-papers quoted in brackets.

### *Time*

- The majority of students were able to solve problems related to time intervals. Given the starting time and time interval, they could find the finishing time (e.g. Q20/M3).

Q20/M3

穎琪 在 20:45 開始觀星，1 小時 30 分鐘後結束。

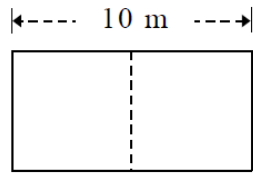
以 24 小時報時制表示，結束時間是   22   :   15   。

### *Perimeter*

- Students generally could measure and compare the perimeters of 2-D shapes (e.g. Q20/M1, Q19/M2).
- The majority of students were able to find the perimeters of squares and rectangles (e.g. Q21(a)/M1, Q21/M3) but a few students confused area with perimeter.



Q21/M3



上圖的長方形可分割成兩個大小相同的正方形。

長方形的周界是 50 m。

- Many students could demonstrate recognition of the relationship between circumference and diameter (e.g. Q22/M1).
- The majority of students were able to find the diameter of a circle from its circumference (e.g. Q22(b)/M3). However, a minority of students made mistakes in their calculations when applying the formula of circumference in solving problems. A very small proportion of students confused the area of a circle with its circumference (e.g. Q21/M2).

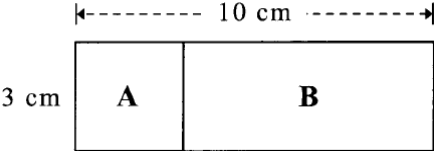
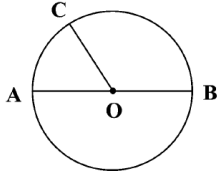
Q21/M2

一個倉鼠轉輪的直徑是 20 cm。倉鼠在轉輪內跑了

10 個圈，共跑了 3140 cm。（取  $\pi$  值為 3.14）

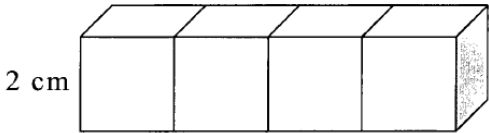
### Area

- Most students could compare the areas of 2-D shapes using improvised units (e.g. Q23/M3).
- The majority of students were able to express the areas of 2-D shapes using 'square centimetre' ( $\text{cm}^2$ ) (e.g. Q23/M1).
- The performance of students was quite good in finding the areas of squares, parallelograms and triangles (e.g. Q22/M2, Q24(a)/M3, Q25/M4).
- Students generally could find the areas of rectangles, trapeziums and circles (e.g. Q21(b)/M1, Q24(b)/M3, Q24(b)/M1, Q24/M4) but some of them confused perimeter with area.

Q21(b)/M1	Q24(b)/M1
 <p>(b) 長方形 B 的面積是 <u>21</u> <math>\text{cm}^2</math>。</p>	<p>下圖中，O 點是圓心。A、B 和 C 是圓周上的點。</p>  <p>(b) 圓面積是 <u>18.84</u> <math>\text{cm}^2</math>。 (取 <math>\pi</math> 值為 3.14)</p>

**Volume**

- The majority of students could express the volume of solids using ‘cubic centimetre’ ( $\text{cm}^3$ ) (e.g. Q23/M2).
- Many students were able to find the volumes of cubes and cuboids (e.g. Q25/M1, Q25/M3, Q27(b)/M4). In Q25/M1, a small proportion of students confused area with volume.

Q25/M1
 <p>上圖長方體由四個正方體組成，每個正方體邊長 2 cm。</p> <p>長方體的體積是 <u>16</u> <math>\text{cm}^3</math>。</p>

- Quite a number of students could demonstrate recognition of the relationship between capacity and volume (e.g. Q25/M2, Q27(a)/M4).
- Students performed quite well in finding the volume of irregular solids by displacement of water (e.g. Q26/M1, Q26/M2).

**Speed**

- Many students could express the cycling speed of a primary pupil in ‘kilometres per hour’ (km/h) (e.g. Q28/M3). However, a small proportion of students did not

understand the concept of ‘metres per second’ (m/s) and chose the incorrect option C.

Q28/M3

德奇是一名小學生。他踏單車的平均速率是

- A. 2 小時。
- B. 1 500 米。
- C. 200 米每秒。
- D. 8 公里每小時。

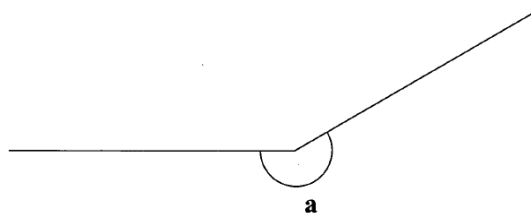
- Many students could solve simple problems of speed (e.g. Q27/M1, Q28/M4).

### Angle

- The majority of students were able to compare the sizes of angles (e.g. Q29/M3). However, they were quite weak in measuring a reflex angle (e.g. Q28/M1).

Q28/M1

用量角器量度下面  $\angle a$ 。



$$\angle a = \underline{150^\circ}$$

(答案須寫上單位)

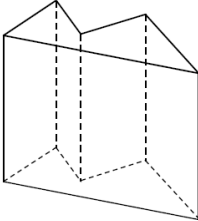
## P.6 Shape & Space Strand

Students performed well in the Shape & Space Strand. They have a good understanding of the properties of 3-D shapes and 2-D shapes as well as the eight compass points. In general, students could identify symmetric 2-D shapes and find the axes of symmetry of symmetric 2-D shapes. Some students mixed up equilateral triangles and isosceles triangles, rhombuses and parallelograms. Further comments on their performance are provided below with examples from different sub-papers quoted in brackets.

**3-D and 2-D Shapes**

- The majority of students were able to identify prisms and they could find the correct numbers of faces and vertices of 3-D shapes (e.g. Q30/M1, Q30/M3).

Q30/M3

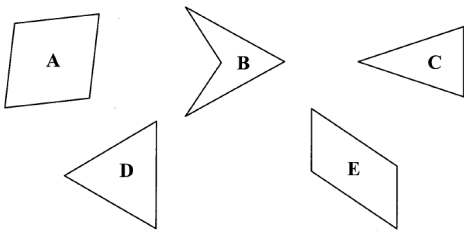


上圖是一個 \* 角柱 / 角錐 (\*圈出答案),  
 它有 10 個頂點。

- Students excelled in demonstrating recognition of the properties of circles, trapeziums and squares (e.g. Q24(a)/M1, Q22(a)/M3, Q31/M1, Q31/M3).
- Generally, students could identify the equilateral triangles and rhombuses. However, some students mistook isosceles triangles for equilateral triangles and mistook parallelograms for rhombuses (e.g. Q32/M2).

Q32/M2

觀察下面的平面圖形，寫出所有代表答案的英文字母。



Study the 2-D shapes below. Write all the letters for the answers.

(a) 等邊三角形: C, D

(b) 菱形: A

(a) Equilateral triangle: D

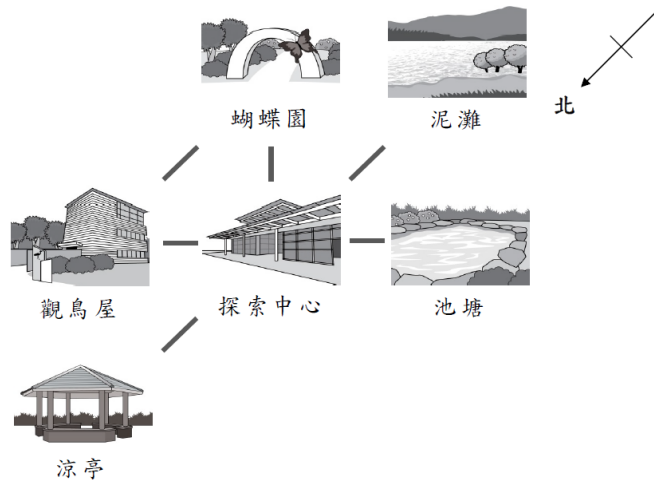
(b) Rhombus: E, A

**Directions and Positions**

- Students performed well in solving problems involving the eight compass points (e.g. Q33/M1, Q33/M2). However, a very small proportion of students wrote the incorrect Chinese characters for the directions 'south' and 'north'.

- A small proportion of students were unable to ascertain the correct direction relative to the reference point (e.g. Q33(b)/M2).

Q33(b)/M2



(b) 蝴蝶園在觀鳥屋的 北 方。

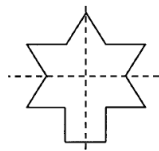
(b) 蝴蝶園在觀鳥屋的 西南 方。

**Symmetry**

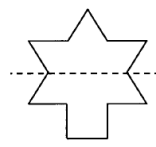
- Quite a number of students could identify symmetric 2-D shapes (e.g. Q32/M1). The majority of students were able to find the axes of symmetry of the symmetric 2-D shapes (e.g. Q30/M2).

Q30/M2

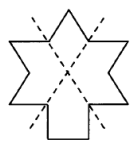
如以虛線標示圖形的所有對稱軸，下面哪幅圖是正確的？



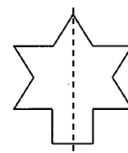
A.



B.



C.



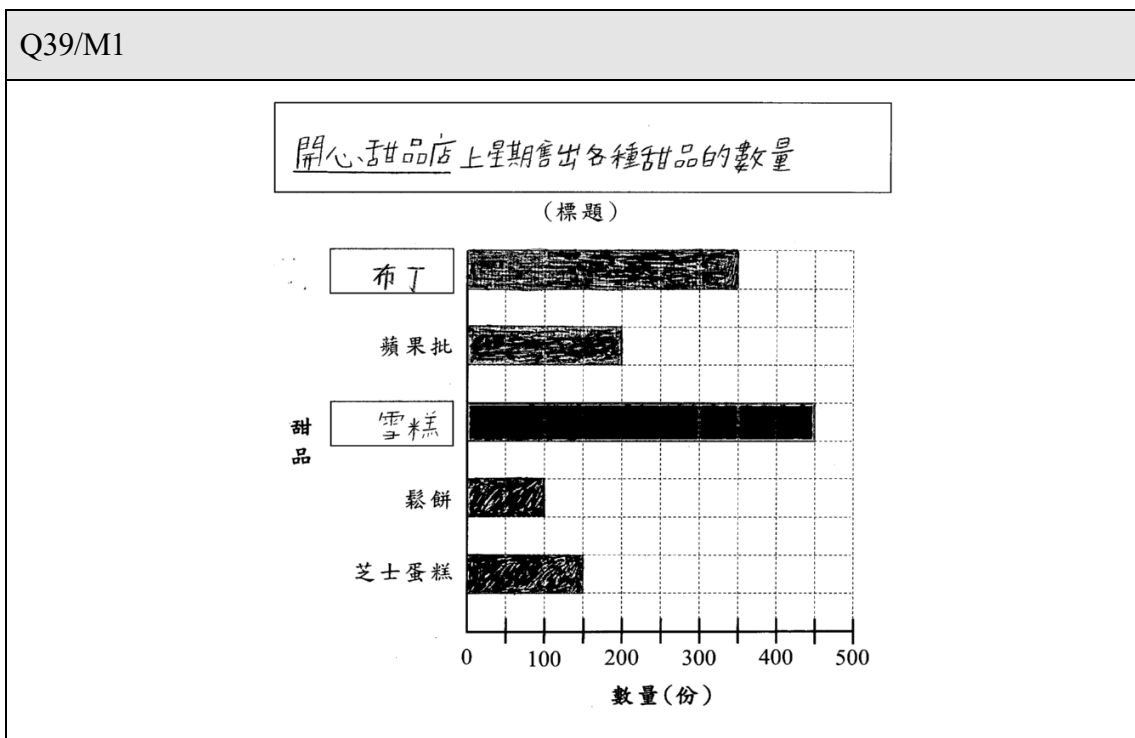
D.

## P.6 Data Handling Strand

The performance of students in the Data Handling Strand was good. The majority of students were capable of reading the data presented in bar charts as well as constructing accurate bar charts. Students were good at extracting the data from broken line graphs and answering simple questions. Students performed quite well in reading data from pie charts to perform simple calculations. However, student's performance was fair in calculating the average of a group of data and solving simple problems of averages. Further comments on their performance are provided with examples from different sub-papers quoted in brackets.

### Bar Charts

- Most students were capable of extracting the data from bar charts (e.g. Q38(a)/M4). However, a small proportion of students were not able to use the data from the bar charts to answer simple questions involving addition. (e.g. Q38(b)/M4).
- A majority of students were able to construct bar charts and add the titles correctly (e.g. Q39/M1).



### Broken Line Graphs

- The majority of students were able to extract the data from broken line graphs and used the information to answer simple multiplication questions (e.g. Q38/M1).

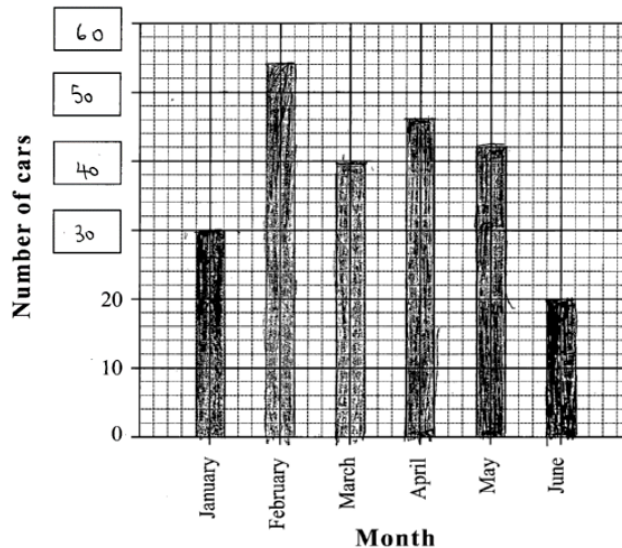
- In constructing broken line graphs, most students were able to add correct scales along the vertical axis, and they were good at adding suitable titles (e.g. Q39/M3).
- In Q39/M3, many students were able to draw accurate broken line graphs. However, a very small proportion of students mistakenly used bar charts to represent the data.

Q39/M3

According to the information above, use a pencil to complete the following broken line graph. Give it a title and add the scales.

Number of cars sold by City Company in the last six months

(Title)



*Pie Charts*

- Many students were able to read the data from pie charts and calculate the quantity of specific items (e.g. Q38(a)/M2, Q38(a)/M3).
- Students performed quite well in using data from pie charts to answer questions involving percentages and fractions (e.g. Q38(b)/M2, Q38(b)/M3).

*Averages*

- The performance of students was fair in calculating the average of a group of data (e.g. Q29/M1).
- More than half of the students were able to solve problems of averages (e.g. Q29/M2) but a few mistook the total amount paid for the seven lunch boxes for the answer.

Q29/M2

下表顯示快餐店各款午餐的售價。

A 餐	\$26.00
B 餐	\$24.00
C 餐	\$26.50

陳先生買了 1 盒 A 餐，4 盒 B 餐和 2 盒 C 餐。他平均

每盒午餐須付 175 元。

## P.6 Algebra Strand

The performance of students in the Algebra Strand was quite good. They were able to use algebraic expressions, solve equations not involving collecting like terms and solve problems by using simple equations. More detailed comments on their performance are provided below with examples from different sub-papers quoted in brackets.

### *Elementary Algebra*

- The majority of students could use algebraic expressions to represent the operations of and relations between quantities that are described in words and involve unknown quantities (e.g. Q34/M1, Q35/M3).

### *Simple Equations*

- The majority of students demonstrated recognition of equations (e.g. Q35/M1).
- Students performed quite well in solving simple equations (e.g. Q36/M1, Q36/M2, Q36/M3). However, some students were not able to use the principle of balancing equations. They were also careless in calculating the answer (e.g. Q36/M2).

Q36/M2

$$\frac{k}{9} = \frac{2}{18}$$

$$k = \boxed{2}$$

$$\frac{k}{9} = 18$$

$$k = \boxed{171}$$



- The majority of students were able to solve problems by setting up an equation according to the context and showing the working steps (e.g. Q37/M1). However, some students missed the required data when setting up an equation or were unable to deal with the operation involving quantities and unknown in solving the equation (e.g. Q37/M2).

Q37/M2	
<p>陳太太買了4支牙刷和1支牙膏，共付\$66.5。一支牙膏的售價是\$30.5，每支牙刷的售價是多少？</p> <p>(列方程計算)</p>	
<p>設每枝牙刷的售價是<math>a</math>。</p> $4a + 1 = 66.5$ $4a + 1 - 1 = 66.5 - 1$ $4a = 66.4$ $\frac{4a}{4} = \frac{66.4}{4}$ $a = 27.5$ <p>每枝牙刷的售價是27.5元。</p>	<p>設每支牙刷的售價是<math>y</math>元。</p> $4y + 30.5 = 66.5$ $\frac{34.5y}{34.5} = \frac{66.5 - 34.5}{34.5}$ $y = 19.5$

- A minority of students were able to set up correct equations but they could not solve the equations and got the wrong answers.

Q37/M1	
<p>設該數為<math>k</math>。</p> $\frac{k}{4} - 9 = 3$ $\frac{k}{4} - 9 \times 4 = 3 \times 4$ $k - 9 = 12$ $k - 9 + 9 = 12 + 9$ $k = 21$	<p>設該數是<math>y</math></p> $y \div 4 - 9 = 3$ $y \div 4 - 9 + 9 = 3 + 9$ $y \div 4 - 18 = 12$ $\frac{y}{4} - 18 = \frac{12}{4}$ $y = 3$ <p>該數是3</p>

## **General Comments on Primary 6 Student Performances**

- The overall performance of P.6 students was quite good in the TSA 2023 Mathematics assessment. Students generally mastered the basic concepts and computational skills stipulated in the document *Basic Competency Descriptors for Key Stage 2 Mathematics Curriculum*.
- The performance of students in the Number Strand was quite good. Students were capable of demonstrating recognition of the place values in whole numbers, finding the highest common factor and the least common multiple of two numbers, performing the interconversion between fractions, decimals and percentages, comparing the magnitude of fractions and decimals as well as performing the four arithmetic operations. Their performance was fair in solving problems involving fractions or percentages. However, students need to strengthen their understanding of prime numbers and composite numbers, common factors and common multiples as well as the place values of decimals.
- Students performed quite well in the Measures Strand. Students were able to find the perimeters of squares and rectangles, the areas of 2-D shapes and the volumes of cubes and cuboids. They could demonstrate recognition of the relationship between capacity and volume, and solve simple problems of speed. However, some students require a thorough understanding of some basic concepts such as perimeter, area and volume. There was still room for improvement in measuring the sizes of angles.
- Students performed well in the Shape & Space Strand. They have a good understanding of the properties of 3-D shapes and 2-D shapes as well as the eight compass points. Students generally were able to identify symmetric 2-D shapes and find the axes of symmetry of symmetric 2-D shapes. However, some students mixed up equilateral triangles and isosceles triangles, rhombuses and parallelograms.
- The performance of students in the Data Handling Strand was good. They could read the data presented in bar charts and broken line graphs, and use the data from the statistical graphs to answer simple questions. Students were good at constructing bar charts. Many students were able to read data from pie charts and perform simple calculations. Students demonstrated fair performance in calculating the average of a group of data and solving simple problems of averages.
- Students performed quite well in the Algebra Strand. They were able to use algebraic expressions to represent the operations of and relations between quantities that are

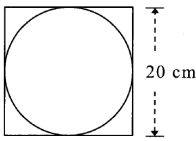
described in words and involve unknown quantities. They could demonstrate recognition of equations, solve equations not involving collecting like terms and solve problems by using simple equations.

### Good Performance of Primary 6 Students in 2023

- Students with good performance demonstrated mastery of the concepts, calculations and solving problem skills assessed by the sub-papers. They were able to identify the prime numbers and composite numbers. They have good understanding of common factors and common multiples as well as the place values of decimals. They were good at converting fractions to decimals. They were more able in performing the four arithmetic operations of fractions and decimals, and also capable of solving problems involving fractions and decimals.

Q19/M4	Q18/M2
<p style="text-align: center;">子樂儲蓄了：</p> $780 \times \left(1 - \frac{5}{6}\right)$ $= 780 \times \frac{1}{6}$ $= 130 \text{ (元)}$	$(2.75 + 0.5) \div 0.25$ $= 3.25 \div 0.25$ $= \underline{\underline{13 \text{ cups}}}$ <p>Ans: The shopkeeper can make 13 cups of milk tea altogether.</p>

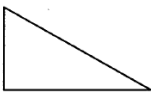
- Students with good performance were able to find the perimeters and the areas of 2-D shapes as well as the volumes of cubes and cuboids. They could demonstrate recognition of the relationship between capacity and volume. They were capable of solving problems of speed and correctly measuring the sizes of angles.

Q24/M4	Q27(a)/M4
 <p>浩明在正方形內畫了一個最大的圓（如上圖所示）。</p> <p>圓面積是 <u>314</u> <math>\text{cm}^2</math>。</p> <p>（取 <math>\pi</math> 值為 3.14）</p>	<p>The side of a cubic container is 20 cm. What is its capacity?</p> <p> <input type="radio"/> A. 400 mL  <input checked="" type="radio"/> B. 8 L  <input type="radio"/> C. 80 L  <input type="radio"/> D. 8 000 L </p>

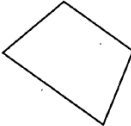
- Students with good performance were good at identifying 3-D shapes and 2-D shapes, the eight compass points as well as the symmetric 2-D shapes.

Q32/M1

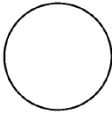
觀察下面的平面圖形，寫出所有代表答案的英文字母。




A



B



C



D

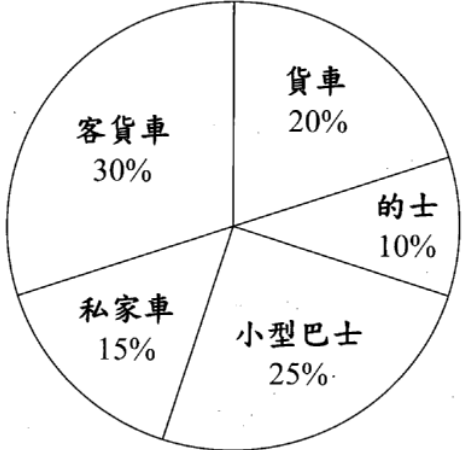
列出軸對稱圖形。

答案：B, C

- Students with good performance were able to read the data from pie charts, calculate the quantity of a specific item, and answer related questions.

Q38/M2

昨天停泊在陽光停車場內的汽車



車種	百分比
客貨車	30%
貨車	20%
的士	10%
私家車	15%
小型巴士	25%

(a) 停車場內數量最少的汽車是 的士，  
只有 12 輛。

(b) 小型巴士及私家車佔全部汽車的 40 %。

- Students with good performance were able to use algebraic expressions to represent the operations of and relations between quantities and unknown quantities. They could use equations in solving problems and show the correct steps in solving equations.

Q37/M1	Q37/M2
<p>設某數是A</p> $\frac{A}{4} - 9 = 3$ $\frac{A}{4} - 9 + 9 = 3 + 9$ $\frac{A}{4} = 12$ $\frac{A}{4} \times 4 = 12 \times 4$ $A = 48$ <p>某數是48</p>	<p>設每支牙刷的售價是y元。</p> $4y + 30.5 = 66.5$ $4y + 30.5 - 30.5 = 66.5 - 30.5$ $\frac{4y}{4} = \frac{36}{4}$ $y = 9$ <p>每支牙刷的售價是9元。</p>

### Overview of Primary 6 Student Performances in Mathematics in 2017, 2019 and 2023

The percentages of P.6 students achieving Mathematics Basic Competency in 2017, 2019 and 2023 are provided below.

**Table 8.5 Percentages of P.6 Students Achieving Mathematics Basic Competency in 2017, 2019 and 2023<sup>^\*\*</sup>**

Year	% of Students Achieving Mathematics Basic Competency
2017	84.0
2019	84.2
2023	78.3

<sup>^</sup> As participation in the 2018 P.6 TSA was on a voluntary basis, not all P.6 students were involved and hence no territory-wide data is provided in this report.

<sup>\*\*</sup> Due to the volatility of the COVID-19 epidemic, the TSA 2020, 2021 and 2022 were suspended and no data was provided.

A comparison of the strengths and weaknesses of P.6 students in 2017, 2019 and 2023 provides useful information for teachers to help students improve their learning. The following tables provide an overview of student performances in each of the five strands for these years.

**Table 8.6 Overview of P.6 Student Performances in Mathematics in 2017, 2019 and 2023**

Year Number	2017	2019	2023	Remarks
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Students were able to master basic concepts including the place values of digits in whole numbers and decimals; factors and multiples; fractions, decimals and percentages.</li> <li>• Students were able to perform the four arithmetic operations involving whole numbers, fraction, decimals and percentages.</li> <li>• Students presented their solutions and working steps clearly in solving application problems.</li> <li>• Students were capable of choosing appropriate methods of estimation.</li> </ul>	<ul style="list-style-type: none"> <li>• Students were able to master basic concepts including the place values of digits in whole numbers and decimals; factors and multiples; fractions, decimals and percentages.</li> <li>• Students were able to perform the four arithmetic operations involving whole numbers, fraction, decimals and percentages.</li> <li>• Students showed their solutions and working steps clearly in solving application problems.</li> <li>• Students were capable of choosing appropriate methods of estimation.</li> </ul>	<ul style="list-style-type: none"> <li>• Students were able to demonstrate recognition of whole numbers, decimals and percentages as well as master the concept of multiples and factors.</li> <li>• Students were able to perform the interconversion between fractions, decimals and percentages. They could also compare the magnitude of fractions and decimals.</li> <li>• Students were capable of performing the four arithmetic operations of whole numbers, decimals and percentages.</li> <li>• Students showed their solutions and working steps clearly in solving problems.</li> <li>• Students were able to estimate the answer by choosing suitable approximate values.</li> </ul>	<ul style="list-style-type: none"> <li>• Some students had room for improvement in the four arithmetic operations of fractions.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• Students easily confused the tens place and tenths place in decimals, the common factors and common multiples of two numbers, etc.</li> <li>• Some students neglected the rule of 'doing division before addition' in problems involving mixed operations.</li> <li>• There was room for improvement in answering application problems involving fractions or percentages.</li> </ul>	<ul style="list-style-type: none"> <li>• Students easily confused the place values in decimals, the common factors and the common multiples, etc.</li> <li>• Some students neglected the rule of 'doing division before subtraction' in problems involving mixed operations.</li> <li>• There was room for improvement in answering application problems involving fractions.</li> </ul>	<ul style="list-style-type: none"> <li>• Students were weak in identifying prime numbers and composite numbers.</li> <li>• A small proportion of students confused the common factors with the common multiples and did not completely understand the place values of decimals.</li> <li>• There was room for improvement in solving problems involving fractions or percentages.</li> </ul>	

Measures \ Year	2017	2019	2023	Remarks
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Students were capable of choosing appropriate units of measurement for recording length, weight and capacity.</li> <li>• Students were able to measure and compare the perimeter of 2-D shapes as well as the capacity of containers.</li> <li>• Students were able to find the perimeter and area of 2-D shapes.</li> <li>• Students were capable of finding the volume of solids.</li> <li>• Students were able to apply the formula of speed.</li> </ul>	<ul style="list-style-type: none"> <li>• Students were capable of choosing appropriate units of measurement for recording length, weight and capacity.</li> <li>• Students were able to measure and compare the perimeter of 2-D shapes as well as the capacity of containers.</li> <li>• Students were able to find the perimeter and area of 2-D shapes.</li> <li>• Students were capable of finding the volume of solids.</li> <li>• Students were able to recognise the relationship between the volume and the capacity.</li> <li>• Students were able to apply the formula of speed.</li> </ul>	<ul style="list-style-type: none"> <li>• Students were able to find the perimeters of squares and rectangles as well as the areas of 2-D shapes.</li> <li>• Students were able to find the volumes of cubes and cuboids. They could also find the volume of irregular solids by displacement of water.</li> <li>• Students were capable of solving simple problems of speed.</li> <li>• Students were able to compare the sizes of angles.</li> </ul>	<ul style="list-style-type: none"> <li>• Some students mixed up perimeter, area and volume.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• There was room for improvement in finding the area of irregular 2-D shapes.</li> <li>• Some students confused the concepts of capacity and the volume.</li> </ul>	<ul style="list-style-type: none"> <li>• There is room for improvement in finding the area of irregular 2-D shapes.</li> <li>• Some students did not master the relationship between the circumference and diameter of circles.</li> </ul>	<ul style="list-style-type: none"> <li>• There was room for improvement in measuring the sizes of angles.</li> <li>• A small proportion of students were not able to demonstrate recognition of the relationship between capacity and volume.</li> </ul>	

<div style="text-align: right; padding-right: 5px;">Year</div> <div style="text-align: left; padding-left: 5px;">Shape &amp; Space</div>	2017	2019	2023	Remarks
<b>Strengths</b>	<ul style="list-style-type: none"> <li>• Students' performance was stable in identifying 2-D shapes and 3-D shapes.</li> <li>• Students were able to recognise the characteristics of different 2-D shapes.</li> <li>• Students were capable of recognising the eight compass points.</li> <li>• The performance of students improved when the 'north' direction on a map was not pointing upward.</li> </ul>	<ul style="list-style-type: none"> <li>• Students' performance was stable in identifying 2-D shapes and 3-D shapes.</li> <li>• Students were able to recognise the characteristics of different 2-D shapes.</li> <li>• Students were capable of recognising the eight compass points.</li> <li>• The performance of students improved when the 'north' direction on a map was not pointing upward.</li> </ul>	<ul style="list-style-type: none"> <li>• Students were able to demonstrate recognition of the properties of 3-D shapes, involving vertices, edges and faces of 3-D shapes.</li> <li>• Students were able to demonstrate recognition of the properties of 2-D shapes.</li> <li>• Students could demonstrate recognition of the eight compass points.</li> <li>• Students were able to find the axes of symmetry of symmetric 2-D shapes.</li> </ul>	<ul style="list-style-type: none"> <li>• Different examples of triangles, parallelograms and rhombuses can be shown in measuring activities.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>• A small number of students were not capable of classifying 2-D shapes.</li> <li>• Some students had difficulty in finding the reference point from given directions.</li> </ul>	<ul style="list-style-type: none"> <li>• Some students were not capable of classifying 2-D shapes.</li> <li>• Some students could not judge the direction relative to a reference point.</li> </ul>	<ul style="list-style-type: none"> <li>• Some students mixed up isosceles triangles and equilateral triangles, parallelograms and rhombuses.</li> <li>• Some students were not able to identify symmetric 2-D shapes.</li> </ul>	



Year	2017	2019	2023	Remarks
<b>Data Handling</b>				
<b>Strengths</b>	<ul style="list-style-type: none"> <li>Students were capable of reading data presented in statistical graphs and answering related questions.</li> <li>Students performed well in drawing pictograms and bar charts.</li> <li>Students were capable of finding the average of a group of data and solving simple problems of averages.</li> </ul>	<ul style="list-style-type: none"> <li>Students were capable of reading data presented in statistical graphs and answering related questions.</li> <li>Students performed well in drawing pictograms and bar charts.</li> <li>Students were capable of finding the average of a group of data and solving simple problems of averages.</li> </ul>	<ul style="list-style-type: none"> <li>Students were able to read data from bar charts and broken line graphs, and answer related questions.</li> <li>Students were good at constructing bar charts.</li> </ul>	<ul style="list-style-type: none"> <li>Teachers can show real-life examples of bar charts and broken line graphs in the classroom, including the use and presentation of titles.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>Some students added inappropriate titles to statistical graphs.</li> <li>A small number of students drew bars of incorrect height when constructing bar charts.</li> </ul>	<ul style="list-style-type: none"> <li>Some students added inappropriate titles to statistical graphs.</li> </ul>	<ul style="list-style-type: none"> <li>A very small proportion of students mixed up broken line graphs and bar charts.</li> <li>Some students were unable to calculate the average of a group of data and solve simple problems of averages.</li> </ul>	

Year	2017	2019	2023	Remarks
<b>Algebra</b>				
<b>Strengths</b>	<ul style="list-style-type: none"> <li>Students were capable of using symbols to represent numbers and understood the concept of equations.</li> <li>Students were capable of solving equations up to two steps.</li> <li>In solving application problems by equations, students could define the symbol used and write down the correct equation and conclusion.</li> </ul>	<ul style="list-style-type: none"> <li>Students were capable of using symbols to represent numbers and understood the concept of equations.</li> <li>Students were capable of solving equations up to two steps.</li> <li>In solving application problems by equations, students could define the symbol used and write down the correct equation and conclusion.</li> </ul>	<ul style="list-style-type: none"> <li>Students were able to use algebraic expressions to represent the operations of and relations between quantities and unknown quantities.</li> <li>Students were capable of solving equations not involving collecting like terms.</li> <li>In solving problems by using equations, students could define the symbol used and write down the correct equation and conclusion.</li> </ul>	<ul style="list-style-type: none"> <li>A very small proportion of students did not use all the given data to set up the equations in solving problems.</li> </ul>
<b>Weaknesses</b>	<ul style="list-style-type: none"> <li>In solving equations, some students made careless mistakes or did not write down any steps.</li> </ul>	<ul style="list-style-type: none"> <li>Some students misunderstood the meaning of the question and could not set up a correct equation.</li> </ul>	<ul style="list-style-type: none"> <li>A small proportion of students misunderstood the meaning of the question and could not set up the correct equation.</li> </ul>	