

Contents



Exercise	Topic	Strand	Learning objectives	Page
1	Large numbers	Number	<ul style="list-style-type: none"> Understand the concept of large numbers Compare large numbers 	4
2	Approximations		<ul style="list-style-type: none"> Find the approximate values of large numbers by rounding off the numbers Estimate the number of a large quantity of objects 	6
3	Comparing fractions	Number	<ul style="list-style-type: none"> Compare fractions with different denominators (no more than 3 fractions) 	8
4	Addition of fractions with different denominators		<ul style="list-style-type: none"> Perform addition of fractions with different denominators (with no more than 3 fractions) Solve the problems involving addition of fractions with different denominators 	10
5	Subtraction of fractions with different denominators		<ul style="list-style-type: none"> Perform subtraction of fractions with different denominators (with no more than 3 fractions) Solve the problems involving subtraction of fractions with different denominators 	12
6	Addition and subtraction of fractions with different denominators		<ul style="list-style-type: none"> Perform addition and subtraction of fractions with the different denominators (with no more than 3 fractions) Solve the problems involving addition and subtraction of fractions with different denominators 	14
7	Areas of parallelograms	Measures	<ul style="list-style-type: none"> Recognise the base and height of a parallelogram Understand and apply the formula for finding the areas of parallelograms 	16
8	Areas of triangles		<ul style="list-style-type: none"> Recognise the base and height of a triangle Understand and apply the formula for finding the areas of triangles 	18
9	Areas of trapeziums		<ul style="list-style-type: none"> Recognise the base and height of a trapezium Understand and apply the formula for finding the areas of trapeziums 	20
10	Areas of polygons		<ul style="list-style-type: none"> Find the areas of polygons 	22
Assessment 1			<ul style="list-style-type: none"> Cover the content of exercises 1 - 10 	24
11	Multiplication of fractions (1)	Number	<ul style="list-style-type: none"> Perform multiplication of two fractions including a proper fraction multiplied by a whole number and involving a mixed number Solve the problems involving multiplication of fractions 	28
12	Multiplication of fractions (2)		<ul style="list-style-type: none"> Perform multiplication of two fractions including a proper fraction multiplied by a proper fraction, and a whole number multiplied by a mixed number Solve the problems involving multiplication of fractions 	30

Exercise	Topic	Strand	Learning objectives	Page
13	Multiplication of fractions (3)	Number	<ul style="list-style-type: none"> Perform multiplication of three fractions Solve the problems involving multiplication of fractions 	32
14	Algebraic symbols (1)	Algebra	<ul style="list-style-type: none"> Use letters to represent numbers Use algebraic expressions to represent the calculation of only one unknown and the relationships between quantities 	34
15	Algebraic symbols (2)		<ul style="list-style-type: none"> Use algebraic expressions to represent the text narrations and the relationships involving the calculation of unknowns and the relationships between quantities 	36
16	Compound bar charts (1)	Data Handling	<ul style="list-style-type: none"> Understand compound bar charts Read compound bar charts 	38
17	Compound bar charts (2)		<ul style="list-style-type: none"> Construct compound bar charts 	40
18	Chinese numerals and Roman numerals (Enrichment)		<ul style="list-style-type: none"> Recognise Modern Chinese numerals Recognise Classical Chinese numerals and Roman numerals 	42
Assessment 2			<ul style="list-style-type: none"> Cover the content of exercises 11 - 17 	44
Final Assessment			<ul style="list-style-type: none"> Cover the content of exercises 1 - 17 	48

Additional Resources:

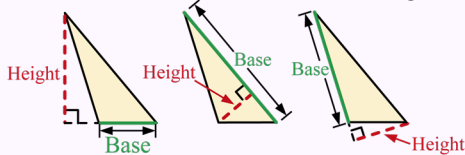
<ul style="list-style-type: none"> Cross-topic Exercise 	56
<ul style="list-style-type: none"> Challenging Problems ('Inquiry and Investigation' in the latest curriculum) 	58
<ul style="list-style-type: none"> Revision Notes 	60
<ul style="list-style-type: none"> Answer Booklet (Including Solution Guide, Common Mistakes Explanation, MCQ Explanation) 	



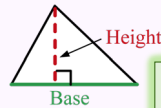
1 1-minute Revision

Concept Review

- Corresponding base and height of a triangle: Each base has a corresponding height.



- Formula for finding the areas of triangles

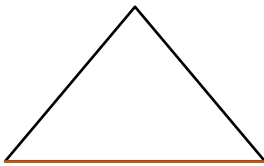


$$\text{Area of a triangle} = \text{Base} \times \text{Height} \div 2$$

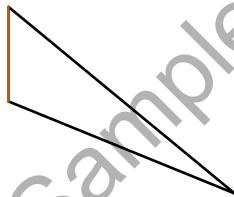
2 Basic Practice

In each of the triangles below, use the brown line as the base and draw the corresponding height with \perp .

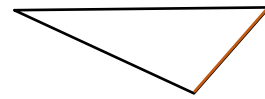
1.



2.

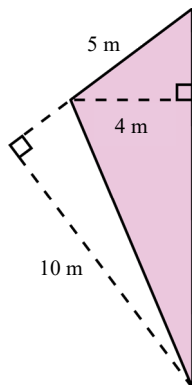


3.

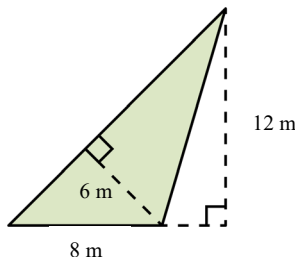


Find the area of each of the triangles below. Write the answer with a unit.

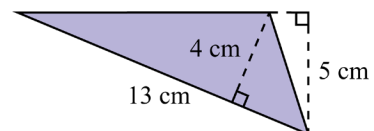
4.



5.

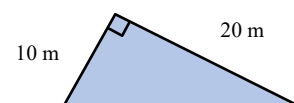


6.

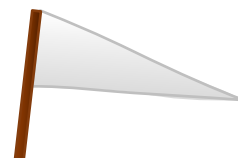


Fill in the blanks.

7. Kelly spent \$32 400 covering the floor in the triangular room, as shown on the right with tiles. It cost \$ _____ per square metre to cover the floor with tiles.



8. The height of a triangular flag is 30 cm. Its base is 4 times the height. The area of the flag is _____ cm^2 .



Date Time used

minutes

Marks

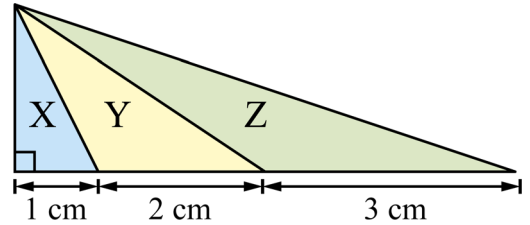
3 Advanced Practice

Blacken the next to the correct answer.



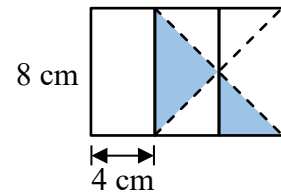
9. According to the figure on the right, which of the following is correct?

- A. The area of Z is 3 times that of X.
- B. The area of X is 2 times that of Y.
- C. The total area of X, Y and Z is 6 cm^2 .
- D. The total area of X and Y is larger than that of Z.



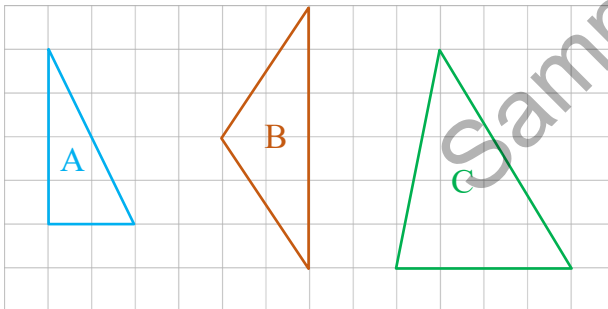
10. The figure on the right is made up of 3 identical rectangles. What is the area of the coloured part?

- A. 16 cm^2
- B. 24 cm^2
- C. 32 cm^2
- D. 48 cm^2



Complete the following questions.

11. Compare the triangles below. Arrange them from the smallest to the largest. Write the letters in the blanks.



_____ < _____ < _____
 (smallest) (largest)

12. The perimeter of a leisure pool that is in the shape of an isosceles triangle is 54 m. Two of its sides are 15 m each. The corresponding height of the remaining side is 9 m. The area of the leisure pool is _____ m^2 .

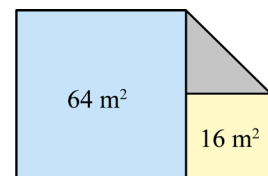
Quick Reminder

3B Triangles

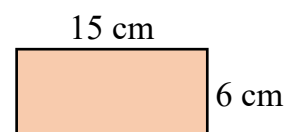
The two sides of an isosceles triangle are equal in length.



13. The figure on the right is made up of 2 squares and 1 triangle. The area of the triangle is _____ m^2 .



14. Cut the largest triangle from the rectangular handicraft paper on the right. The area of the triangle is _____ cm^2 .



15. The rectangle on the right is made up of 4 squares of the same size. The perimeter of each square is 20 cm. The area of the coloured part is _____ cm^2 .



Quick Reminder

4B Perimeter

Perimeter of a square = length of the side \times 4

Assessment 2

Time allowed: **30** min

Name: _____ Class: _____ () Date: _____

Assessment points		Questions	Marks
Multiplication of fractions	A fraction multiplied by a whole number, a fraction multiplied by a fraction and multiplication of 3 fractions	1 – 9	/ 40
Algebra	Algebraic symbols and algebraic expressions	10 – 16	/ 30
Compound bar charts	Read and construct compound bar charts	17 – 18	/ 30
Total marks:			/ 100

- Instructions**
- **Multiple choice questions:** Blacken the \bigcirc next to the correct answer.
 - **Questions in which you are asked to 'show your working':**
Write your mathematical expressions, answers, and statements / conclusions.
 - **Other types of questions:** Answer as required in the spaces provided.

1. a. $8 \times 4\frac{1}{6} =$ _____

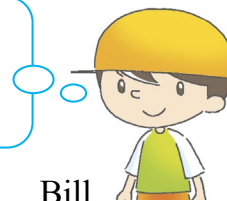
b. $2\frac{2}{5} \times 2\frac{1}{12} =$ _____

c. $\frac{17}{18} \times 6 \times \frac{9}{34} =$ _____

d. $3\frac{4}{15} \times \frac{5}{7} \times 9 =$ _____

2. Bill has \$ _____ of pocket money in a normal year altogether.

I have $\$12\frac{1}{2}$ as pocket money every day.



Bill

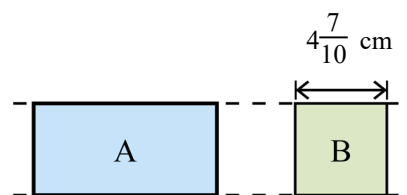
3. A travel agency organised 256 tour groups. $\frac{5}{8}$ of the tour groups went to Southeast Asia. Of the Southeast Asia tour groups, $\frac{1}{4}$ of them went to Japan. There were _____ tour groups going to Japan.

4. Rectangle A and Square B are shown on the right.

a. The perimeter of square B is _____ cm.

b. The length of the rectangle is 2 times its width.
The length of the rectangle is _____ cm.

c. The area of the rectangle is _____ cm^2 .



Marks

3M

3M

3M

3M

2M

2M

2M

2M

2M

2M

2M

2M

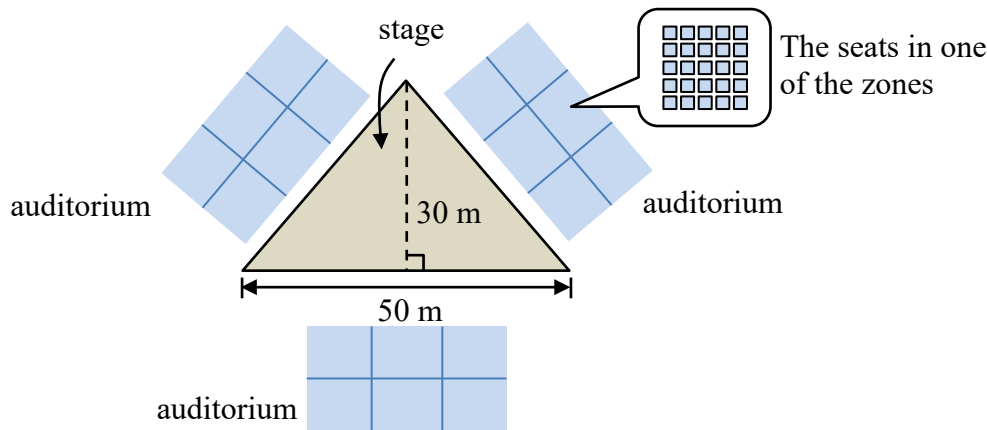
2M

2M

Cross-topic Exercise

Complete the questions below.

1. The figure below shows a triangular stage.

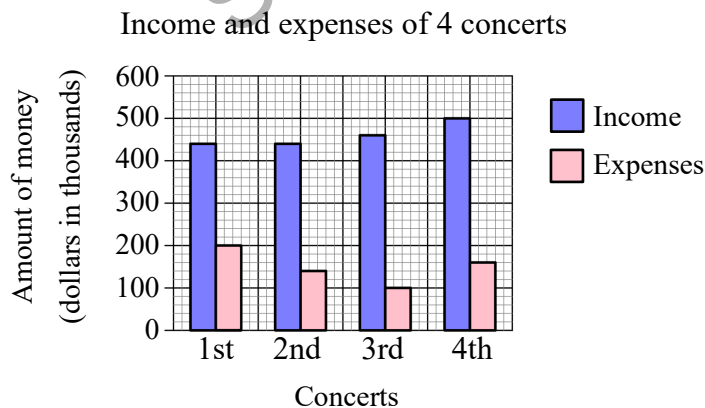


- a. The area of the stage is _____. (Write the answer with a unit.)
- b. There are auditoriums on each side of the stage. Each side is divided into 6 zones. How many seats are there in the venue?

Number of seats on each side of the stage: _____ × _____ × _____ = _____

Number of seats in the venue: _____ × _____ = _____

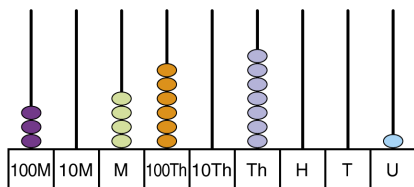
2. The bar chart below shows the income and expenses of 4 concerts.



- a. The _____ concert has the largest difference between the income and expenses.
- b. What fraction of the total expenses of the four concerts is the 1st concert?
Answer: _____
- c. After deducting the expenses, $\frac{1}{4}$ of the total income was donated to a charity.
_____ thousand dollars were donated to the charity.
- d. The costumes used in the concerts were sponsored by a clothing company, with a total sponsorship of \$ B . If the clothing company cancels the sponsorship, the concerts' expenses will be \$_____. (Write the algebraic expression.)

Unit 1: Large numbers (Exercises 1-2)

1. Large numbers

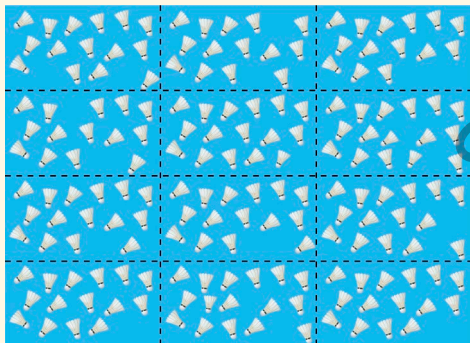


- The number shown on the abacus is 304 607 001.
- It is a 9-digit number.
- 304 607 001 is written in words as ‘three hundred and four million, six hundred and seven thousand and one’.

2. Approximations

- **Actual value** is the value of the actual quantity.
- **Approximate value** is the value that is to the nearest value of the actual quantity.
- When finding an approximate value of a number, first consider which place of a large number is to be rounded off. Then find the approximate value by rounding off.

3. Estimate the number of a large quantity of objects



- Divide the shuttlecocks on the left into 12 equal parts.
 - There are 15 shuttlecocks in one of them.
 - $15 \times 12 = 180$
- There are about 180 shuttlecocks on the left.

Unit 2: Addition and subtraction of fractions (Exercises 3-6)

1. Comparing fractions with different denominators

- When comparing fractions with different numerators and denominators, first expand the fractions to change them to have the same denominator and then compare them.

e.g.: Compare $\frac{1}{3}$ and $\frac{2}{5}$.

$$\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15} \qquad \frac{2}{5} = \frac{2 \times 3}{5 \times 3} = \frac{6}{15}$$

The L.C.M. of 3 and 5 is 15.

$$\therefore \frac{5}{15} < \frac{6}{15} \qquad \therefore \frac{1}{3} < \frac{2}{5}$$

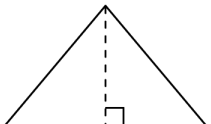
- For mixed numbers, compare the whole number parts first and then the fraction parts.

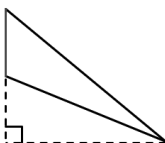
e.g.: Compare $2\frac{1}{6}$, 3 and $2\frac{3}{4}$.

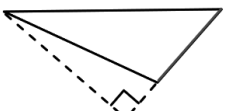
Compare the whole number parts: $3 > 2 \therefore$ Of the three numbers, 3 is the largest.

17. 140 m
 $[(952 \div 28 + 36) \times 2]$

8 Areas of triangles

1. 
 (Accept any reasonable answers)

2. 
 (Accept any reasonable answers)

3. 
 (Accept any reasonable answers)

4. 25 m^2
 $[5 \times 10 \div 2]$

5. 48 m^2
 $[8 \times 12 \div 2]$

6. 26 cm^2
 $[13 \times 4 \div 2]$

7. 324
 $[32\,400 \div (10 \times 20 \div 2)]$

8. 1800
 $[(30 \times 4) \times 30 \div 2]$

9. A
 $[\text{Area of X: } 1 \times \text{Height} \div 2 ;$
 $\text{Area of Y: } 2 \times \text{Height} \div 2 ;$
 $\text{Area of Z: } 3 \times \text{Height} \div 2$
 Thus, the area of Y is 2 times that of X and the area of Z is 3 times that of X.]

MCQ Explanation

Wrong choice	Reason
B	Misunderstand the text narration and swap X and Y.
C	Mistakenly think the total length of the base equals the total area and ignore the height that is an unknown.

D	Judge the size of the figure by observation. The sides of triangle Z are steeper, so mistakenly think its area is smaller.
---	--

10. B
 $[8 \times 4 \div 2 + 4 \times 4 \div 2]$

MCQ Explanation

Wrong choice	Reason
A	Forget to calculate the area of the smaller triangle.
C	Mistakenly think that the area of the coloured part is exactly the same as the area of the rectangle.
D	When calculating the area of the triangle, mistakenly think the formula for finding the area of a triangle is 'Base \times Height'.

11. A, B, C
 $[\text{Area of A: } 2 \times 4 \div 2 = 4$
 $\text{Area of B: } 6 \times 2 \div 2 = 6$
 $\text{Area of C: } 4 \times 5 \div 2 = 10]$

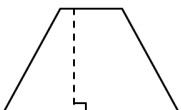
12. 108
 $[(54 - 15 - 15) \times 9 \div 2]$

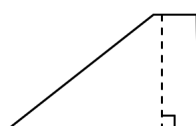
13. 8
 $[\text{The length of the side of the large square is 8 m. The length of the side of the small square is 4 m. Area of the triangle} = (8 - 4) \times 4 \div 2]$

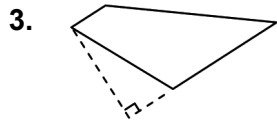
14. 45
 $[15 \times 6 \div 2]$

15. 50
 $[\text{The length of the side of the square is } 20 \div 4 = 5 \text{ cm. Area of the coloured part} = (5 \times 4) \times 5 \div 2]$

9 Areas of trapeziums

1. 
 (Accept any reasonable answers)

2. 
 (Accept any reasonable answers)



(Accept any reasonable answers)

4. 115 m^2 [$(6 + 17) \times 10 \div 2$]

5. 42 m^2 [$(4 + 8) \times 7 \div 2$]

6. 16 cm^2 [$(3 + 5) \times 4 \div 2$]

7. 75

[Upper base and lower base = $47 - 8 - 9$

Area = $(47 - 8 - 9) \times 5 \div 2$]

8. 126 [$(7 + 7 \times 3) \times 9 \div 2$]

9. B

[The length of the side of the square is 3 cm. The length of the side of the rectangle is 4 cm. Its width is 3 cm. The area of the trapezium is $(3 + 4) \times 4 \div 2$]

MCQ Explanation

Wrong choice	Reason
A	Mistakenly think the formula for finding the area of a trapezium is 'Base \times Height \div 2'.
C	When calculating the area of the trapezium, forget ' \div 2'.
D	Mistakenly think 9 cm^2 and 12 cm^2 are the length of the side of the square and the length of the rectangle respectively.

10. B

[The length of the side of the small square is $16 - 10 = 6 \text{ cm}$,

Area of coloured part (trapezium) = $(6 + 10) \times 16 \div 2$]

MCQ Explanation

Wrong choice	Reason
A	Mistakenly think the formula for finding the area of a trapezium is 'Base \times Height \div 2'.
C	Mistakenly think the formula for finding the area of a trapezium is 'Base \times Height'.
D	When calculating the area of the trapezium, forget ' \div 2'.

11. 36 [$(5 + 2 + 5) \times 6 \div 2$]

12. 24 [$(3 + 6 + 3) \times 4 \div 2$]

13. 20

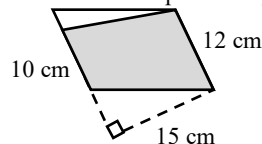
[Length of the rectangle = $30 \div 5 = 6$

Lower base of the trapezium = $12 - 6 = 6$

Area of the remaining part = $(2 + 6) \times 5 \div 2$]

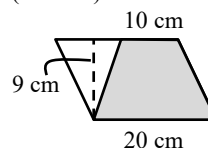
14. 165 cm^2

[$(10 + 12) \times 15 \div 2$, Just like the shaded part below that is in the shape of a trapezium



Common Mistake: 135 ✖

- Ignore that 'the largest trapezium' is required in the question and miscalculated the area of the shaded part: $(10 + 20) \times 9 \div 2$



10 Areas of polygons

1. 59 cm^2

[$(6 + 8) \times 5 \div 2 + 8 \times 3$]

2. 58 m^2

[$(2 + 3 + 2) \times 4 \div 2 + 6 \times 3 + (3 + 10) \times 4 \div 2$]

3. 36 m^2

[$5 \times 4 \div 2 + (5 + 5 - 2) \times (3 + 2) \div 2 + 3 \times 2$]

4. 166 m^2

[$(2 + 8 + 2 + 10) \times (14 + 3) \div 2 - (8 + 6) \times 3 \div 2$]

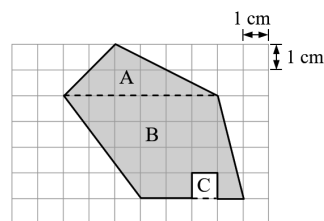
5. ✖

[Do not know the length of the horizontal dotted line.]

6. ✖

7. 25

[Area = $A + B - C$
= $6 \times 2 \div 2 + (6 + 4) \times 4 \div 2 - 1 \times 1$]



8. 48

[$(4 \times 3) \times (3 \times 3) \div 2 - 4 \times 3 \div 2$]