Contents

Additional Resources:

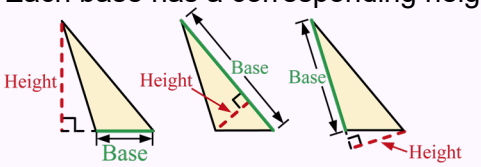
8 Areas of triangles

Concept Review

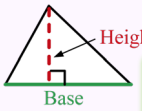
1 1-minute Revision

Concept Review

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



- Formula for finding the areas of triangles

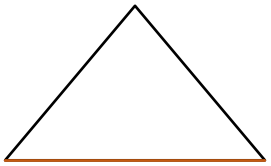


Area of a triangle
= Base × Height ÷ 2

2 Basic Practice

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

1.



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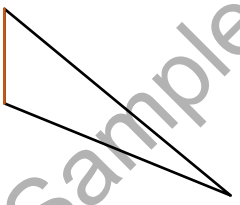
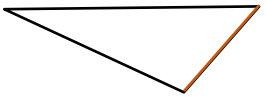
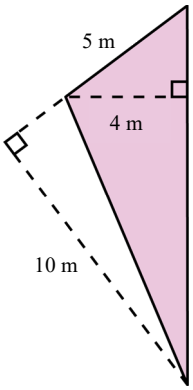


3.



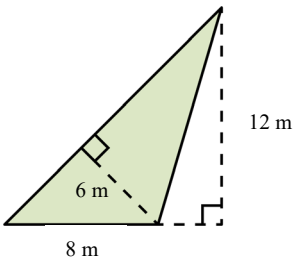
Find the area of each of the triangles below. Write the answer with a unit.

4.



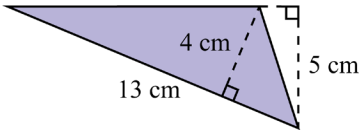
_____

5.



_____

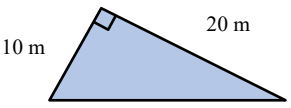
6.



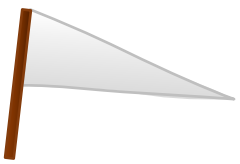
_____

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.



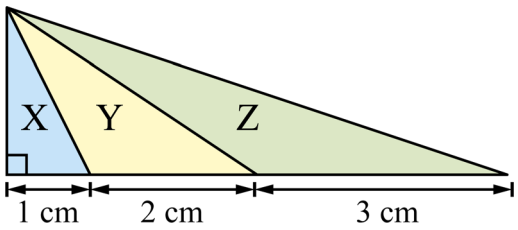
Date		Time used	minutes	Marks	

3 Advanced Practice

Blacken the ◯ next to the correct answer.

Public Exam Question

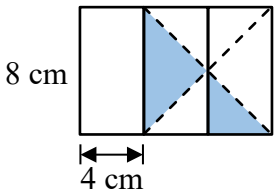
9. According to the figure on the right, which of the following is correct?



◯ 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.

Public Exam Question

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

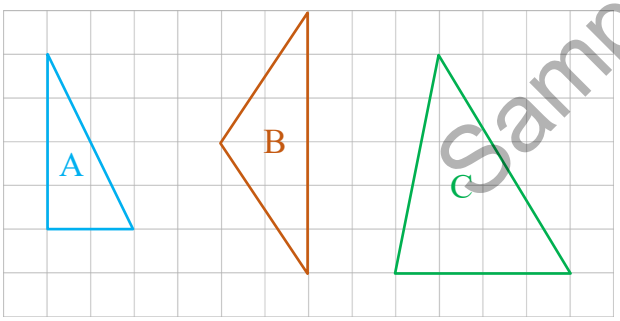


◯ A. 16 cm^2 ◯ B. 24 cm^2
◯ C. 32 cm^2 ◯ D. 48 cm^2

Complete the following questions.

Public Exam Question

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



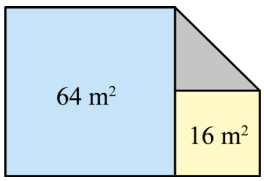
_____ < _____ < _____
(smallest) (largest)

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.

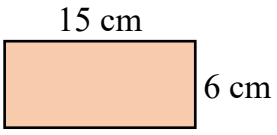
Public Exam Question

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



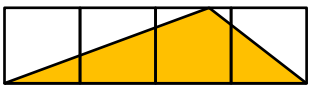
Level-up Question

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



Public Exam Question

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 × 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 ◯ 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.

Marks

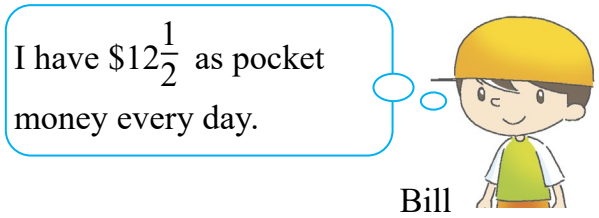
1. **a.** $8 \times 4\frac{1}{6} =$ _____ 3M

b. $2\frac{2}{5} \times 2\frac{1}{12} =$ _____ 3M

c. $\frac{17}{18} \times 6 \times \frac{9}{34} =$ _____ 3M

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

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



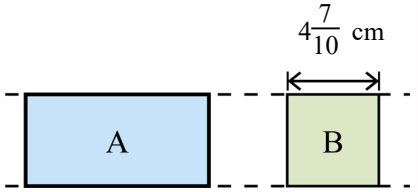
3. A travel agency organised 256 tour groups. $\frac{5}{8}$ of the tour groups went to Southeast Asia. Of the Southeast Asia tour groups, $\frac{1}{4}$ of them went to Japan. There were _____ tour groups going to Japan. 2M

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

a. The perimeter of square B is _____ cm. 2M

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

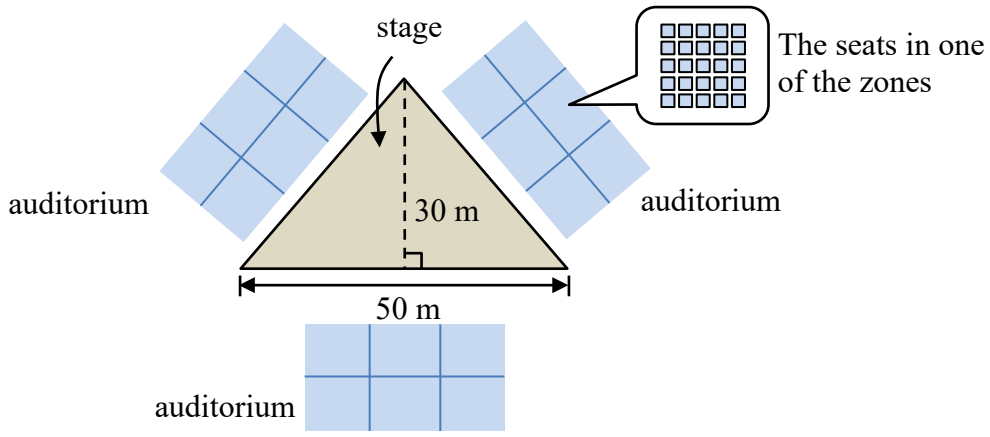
c. The area of the rectangle is _____ cm^2. 2M



Cross-topic Exercise

Complete the questions below.

1. The figure below shows a triangular stage.



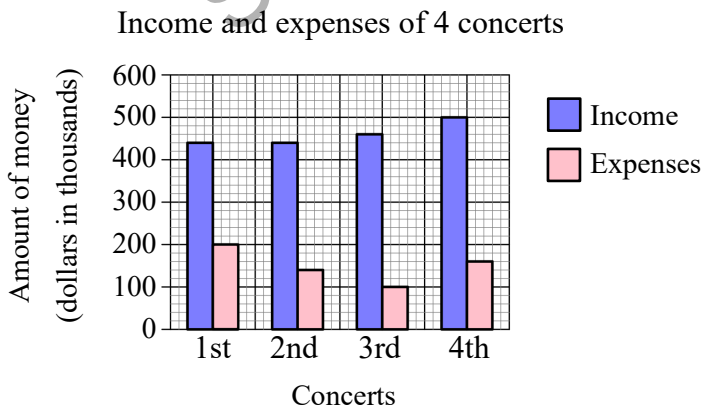
   a. The area of the stage is _____. (Write the answer with a unit.)

   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.

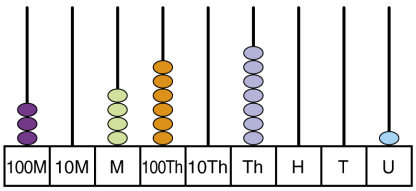
   _____ thousand dollars were donated to the charity.

   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.)

Revision Notes

Unit 1: Large numbers (Exercises 1-2)

1. Large numbers

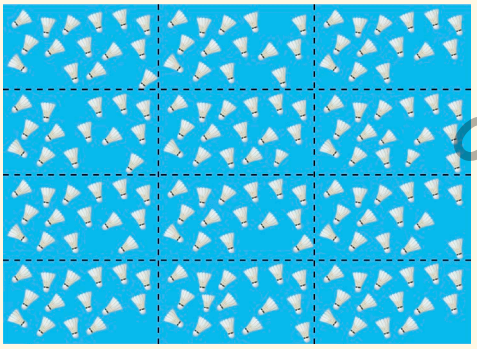


- The number shown on the abacus is 304 607 001.
- It is a 9-digit number.
- 304 607 001 is written in words as 'three hundred and four million, six hundred and seven thousand and one'.

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.

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

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

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

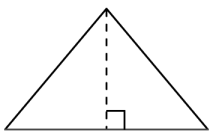
  Compare the whole number parts: $3 > 2$ $\therefore$ Of the three numbers, 3 is the largest.

17. 140 m

[(952 ÷ 28 + 36) ×2]

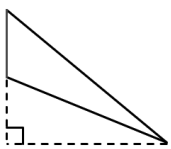
8 Areas of triangles

1.



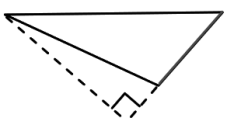
(Accept any reasonable answers)

2.



(Accept any reasonable answers)

3.



(Accept any reasonable answers)

4. 25 m^2

[5 × 10 ÷ 2]

5. 48 m^2

[8 × 12 ÷ 2]

6. 26 cm^2

[13 × 4 ÷ 2]

7. 324

[32 400 ÷ (10 × 20 ÷ 2)]

8. 1800

[(30 × 4) × 30 ÷ 2]

9. A

[Area of X: 1 × Height ÷ 2 ;

Area of Y: 2 × Height ÷ 2 ;

Area of Z: 3 × Height ÷ 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 × 4 ÷ 2 + 4 × 4 ÷ 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 × Height'.

11. A, B, C

[Area of A: 2 × 4 ÷ 2 = 4

Area of B: 6 × 2 ÷ 2 = 6

Area of C: 4 × 5 ÷ 2 = 10]

12. 108

[(54 – 15 – 15) × 9 ÷ 2]

13. 8

[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) × 4 ÷ 2]

14. 45

[15 × 6 ÷ 2]

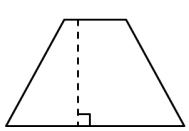
15. 50

[The length of the side of the square is 20 ÷ 4 = 5 cm.

Area of the coloured part = (5 × 4) × 5 ÷ 2]

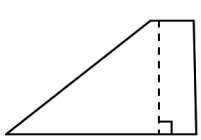
9 Areas of trapeziums

1.

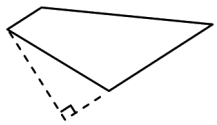


(Accept any reasonable answers)

2.



(Accept any reasonable answers)

3. 

(Accept any reasonable answers)

4. 115 m^2 [(6 + 17) × 10 ÷ 2]

5. 42 m^2 [(4 + 8) × 7 ÷ 2]

6. 16 cm^2 [(3 + 5) × 4 ÷ 2]

7. 75

[Upper base and lower base = 47 – 8 – 9

Area = (47 – 8 – 9) × 5 ÷ 2]

8. 126 [(7 + 7 × 3) × 9 ÷ 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) × 4 ÷ 2]

MCQ Explanation

Wrong choice	Reason
A	Mistakenly think the formula for finding the area of a trapezium is 'Base × Height ÷ 2'.
C	When calculating the area of the trapezium, forget '÷ 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 cm,

Area of coloured part (trapezium) = (6 + 10) × 16 ÷ 2]

MCQ Explanation

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

11. 36 [(5 + 2 + 5) × 6 ÷ 2]

12. 24 [(3 + 6 +3) × 4 ÷ 2]

13. 20

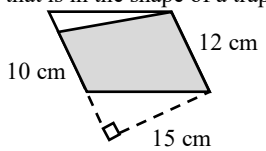
[Length of the rectangle = 30 ÷ 5 = 6

Lower base of the trapezium = 12 – 6 = 6

Area of the remaining part = (2 + 6) × 5 ÷ 2]

14. 165 cm^2

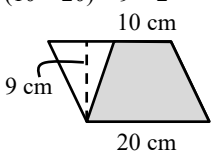
[(10 + 12) × 15 ÷ 2, Just like the shaded part below that is in the shape of a trapezium



]

Common Mistake: 135 ✖

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



10 Areas of polygons

1. 59 cm^2

[(6 + 8) × 5 ÷ 2 + 8 × 3]

2. 58 m^2

[(2 + 3 + 2) × 4 ÷ 2 + 6 × 3 + (3 + 10) × 4 ÷ 2]

3. 36 m^2

[5 × 4 ÷ 2 + (5 + 5 – 2) × (3 + 2) ÷ 2 + 3 × 2]

4. 166 m^2

[(2 + 8 + 2 + 10) × (14 + 3) ÷ 2 – (8 + 6) × 3 ÷ 2]

5. ✖

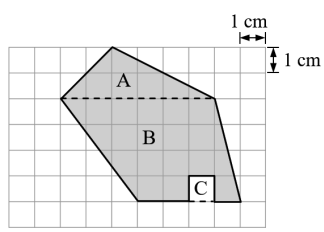
[Do not know the length of the horizontal dotted line.]

6. ✖

7. 25

[Area = A + B – C

= 6 × 2 ÷ 2 + (6 + 4) × 4 ÷ 2 – 1 × 1



]

8. 48

[(4 × 3) × (3 × 3) ÷ 2 – 4 × 3 ÷ 2]