AREA OF A 2-D SHAPE

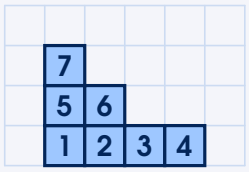
BUILDING BLOCKS

NAME _____ CLASS _____ DATE _____

KEY IDEA

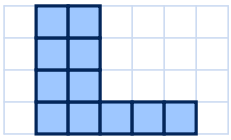
Area is the number of squares inside a shape.
Each square is 1 cm by 1 cm. Its area is 1 cm² (say "one square centimetre").

This shape covers 7 squares, so its area is 7 cm².

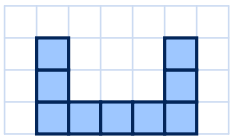


1 cm²

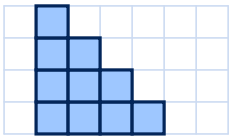
1 Count the squares to find the area of each shape. Each square is 1 cm².

a) 

Area = ☐ cm²

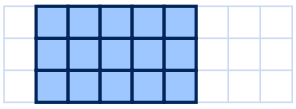
b) 

Area = ☐ cm²

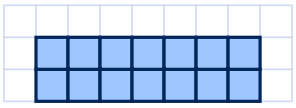
c) 

Area = ☐ cm²

2 Each rectangle is made of rows of squares. Complete the sentences.

a) 

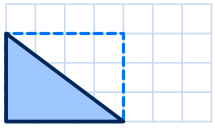
☐ rows of ☐ = ☐ cm²

b) 

☐ rows of ☐ = ☐ cm²

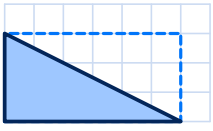
3 Each triangle is half of the dashed rectangle around it. Find each area.

Find the area of the rectangle first, then halve it.

a) 

rectangle = ☐ cm²

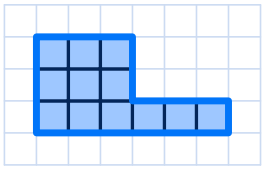
triangle = ☐ cm²

b) 

rectangle = ☐ cm²

triangle = ☐ cm²

4 Find the area and the perimeter of the shaded shape. Each square is 1 cm by 1 cm.



Area = the squares inside (cm²).
Perimeter = the distance all the way around the edge (cm).

a) Area ☐ cm²

b) Perimeter ☐ cm

AREA OF A 2-D SHAPE

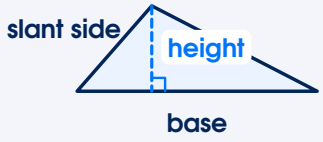
SUPPORT

NAME _____ CLASS _____ DATE _____

KEY IDEA

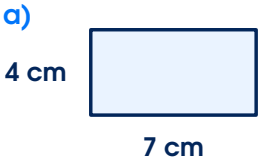
Use the perpendicular height: it meets the base at a right angle and is often dashed. Never use a slant side to find an area.

Area is measured in square units: cm², m², mm².



1 Area of a rectangle = length × width. Work out the area of each rectangle.

a)



☐ × ☐ = ☐ cm²

b)

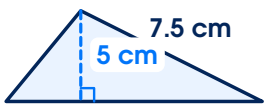


☐ × ☐ = ☐ m²

2 Area of a triangle = base × perpendicular height ÷ 2. Work out each area.

Do not use the slant side.

a)



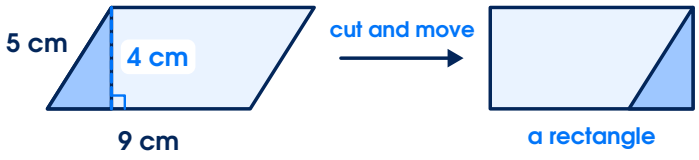
☐ × ☐ ÷ 2 = ☐ cm²

b)



☐ × ☐ ÷ 2 = ☐ cm²

3 Area of a parallelogram = base × perpendicular height. Work out the area.

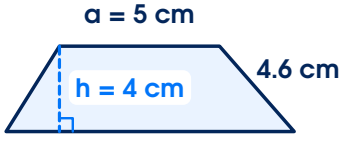


Area = ☐ × ☐ = ☐ cm²

4 Area of a trapezium = (a + b) ÷ 2 × h. Work out each area in cm².

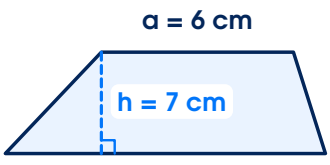
a and b are the two parallel sides.

a)



(☐ + ☐) ÷ 2 × ☐ = ☐

b)



(☐ + ☐) ÷ 2 × ☐ = ☐

AREA OF A 2-D SHAPE

CORE

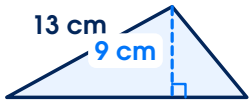
NAME _____ CLASS _____ DATE _____

KEY IDEA

Rectangle	Triangle	Parallelogram	Trapezium
$l \times w$	$b \times h \div 2$	$b \times h$	$(a + b) \div 2 \times h$

FLUENCY

1 Work out the area of each shape. Not all the lengths are needed.



a) ____



b) ____

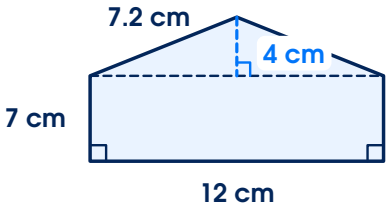


c) ____



d) ____

2 This shape is a rectangle with a triangle on top. Work out its total area.



a) Area of the rectangle ____ cm²

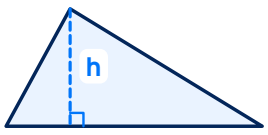
b) Area of the triangle ____ cm²

c) Total area ____ cm²

REASONING

3 The area of each shape is given. Work out each perpendicular height h.

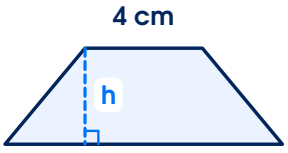
a)



Area = 36 cm²

h = ____ cm

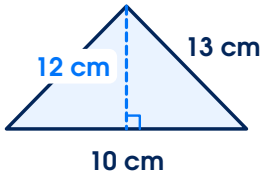
b)



Area = 45 cm²

h = ____ cm

4 Priya works out the area of this triangle.



Priya's working: **Area = 10 × 13 = 130 cm²**

a) Describe Priya's two mistakes.

.....

.....

b) Correct area ____ cm²

AREA OF A 2-D SHAPE

GREATER DEPTH

NAME _____ CLASS _____ DATE _____

REASONING

1 Is each statement always, sometimes or never true? Circle your answer.

Give an example or a reason for each answer.

a) Base × slant side gives the area of a parallelogram. ALWAYS SOMETIMES NEVER

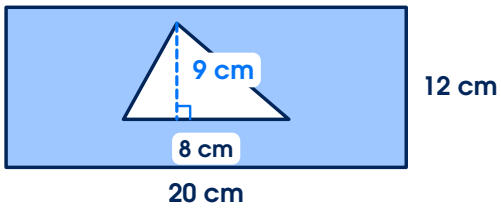
b) Two rectangles with equal areas have equal perimeters. ALWAYS SOMETIMES NEVER

c) Doubling a triangle's height doubles its area. ALWAYS SOMETIMES NEVER

d) A triangle has half the area of a parallelogram. ALWAYS SOMETIMES NEVER

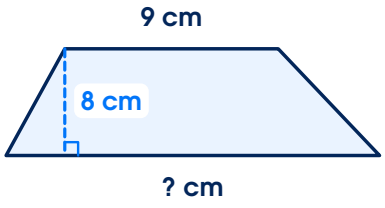
PROBLEM SOLVING

2 A white triangle is cut out of a 20 cm by 12 cm rectangle. Work out the shaded area.



Shaded area ____ cm²

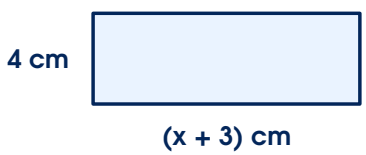
3 The area of this trapezium is 84 cm². Work out the length of its bottom side.

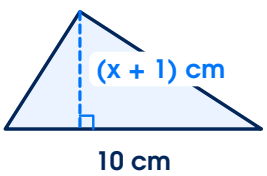


Bottom side ____ cm

★ CHALLENGE FOR ALL

4 The rectangle and the triangle have the same area. All lengths are in centimetres. Form an equation and solve it to find x. Then find the area of each shape.





a) x = ____

b) Each area ____ cm²

AREA OF A 2-D SHAPE – ANSWERS

ANSWERS

BUILDING BLOCKS

1 a) 11 cm² b) 9 cm² c) 10 cm²
2 a) 3 rows of 5 = 15 cm² b) 2 rows of 7 = 14 cm²
3 a) rectangle 12 cm², triangle 6 cm² b) rectangle 18 cm², triangle 9 cm²
4 a) Area 12 cm² b) Perimeter 18 cm

SUPPORT

1 a) $7 \times 4 = 28$ cm² b) $9 \times 3 = 27$ m²
2 a) $8 \times 5 \div 2 = 20$ cm² b) $10 \times 7 \div 2 = 35$ cm²
3 $9 \times 4 = 36$ cm² (the 5 cm slant side is not used)
4 a) $(5 + 9) \div 2 \times 4 = 28$ cm² b) $(6 + 10) \div 2 \times 7 = 56$ cm²

CORE

1 a) $14 \times 9 \div 2 = 63$ cm² b) $8.5 \times 6 = 51$ cm² c) $(7 + 13) \div 2 \times 8 = 80$ cm² d) $12 \times 7.5 \div 2 = 45$ m²
2 a) $12 \times 7 = 84$ cm² b) $12 \times 4 \div 2 = 24$ cm² c) 108 cm² (7.2 cm is not needed)
3 a) $h = 36 \times 2 \div 9 = 8$ cm b) $(4 + 11) \div 2 = 7.5$, $h = 45 \div 7.5 = 6$ cm
4 a) She used the slant side (13 cm) instead of the perpendicular height (12 cm), and she did not divide by 2.
b) $10 \times 12 \div 2 = 60$ cm²

GREATER DEPTH

1 a) sometimes (only when the parallelogram is a rectangle) b) sometimes (e.g. 2×6 and 3×4 both 12 cm², perimeters 16 cm and 14 cm) c) always (the base stays the same, so $b \times h \div 2$ doubles) d) sometimes (only with the same base and height)
2 $20 \times 12 - 8 \times 9 \div 2 = 240 - 36 = 204$ cm²
3 $(9 + b) \div 2 \times 8 = 84 \rightarrow 9 + b = 21 \rightarrow$ bottom side 12 cm
4 $4(x + 3) = 10(x + 1) \div 2 \rightarrow 4x + 12 = 5x + 5 \rightarrow$ a) $x = 7$ b) both 40 cm² (10×4 and $10 \times 8 \div 2$)