


# Y7 Maths Knowledge organiser Topic 13: Area and Perimeter

What must I be able to do?	Key vocabulary	
<ul style="list-style-type: none"> <li>□ Find the area of a rectangle, triangle and parallelogram ➤ Sparx M900, M390, M610</li> <li>□ Calculate the perimeter of rectangles, squares and rectilinear figures ➤ Sparx M920, M635</li> <li>□ Calculate and work with perimeters ➤ Sparx M690</li> <li>□ Solve problems involving length, perimeter and area ➤ Sparx M269</li> </ul>	<b>Area</b>	The <u>space occupied by a flat shape</u> . The area is the amount of units that the shape has covered. Units are squared. e.g. m <sup>2</sup> , cm <sup>2</sup> , mm <sup>2</sup> , etc.
	<b>Perimeter</b>	The perimeter is the <u>distance around the outside</u> of the shape.
	<b>Parallelogram</b>	A <u>quadrilateral with two pairs of parallel sides</u> . A parallelogram with all equal sides is called a <u>rhombus</u> .

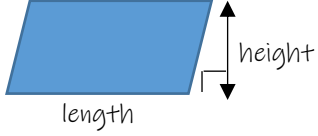
### Area formulae

Rectangle/Square



Area = Length x width

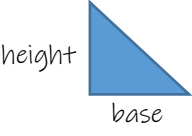
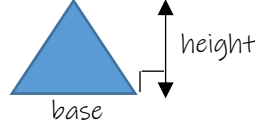
Parallelogram



Area = length x perpendicular height

Perpendicular means at right angles to the base (not the sloping side!)

Triangles

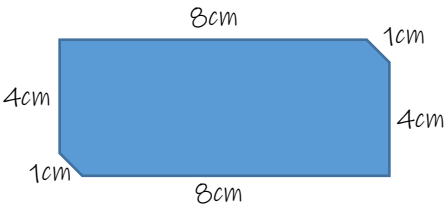



Area = Base x perpendicular height ÷ 2

A triangle is half the area of a rectangle

### Perimeter

Add up the length of each side on the outside of the shape.



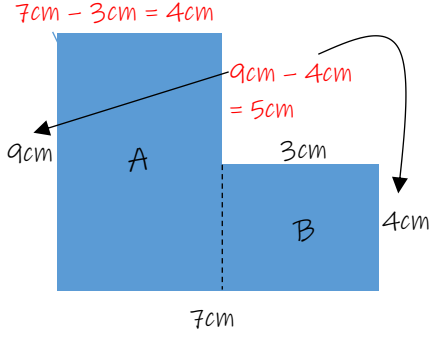
The perimeter is:

$$= 8\text{cm} + 1\text{cm} + 4\text{cm} + 8\text{cm} + 1\text{cm} + 4\text{cm}$$

$$= 26\text{cm}$$

### Compound shapes

Area: Split the shape into known shapes (e.g. rectangles) and find the area of each then add them together:



Rectangle A:  $9 \times 4 = 36\text{cm}^2$

Rectangle B:  $4 \times 3 = 12\text{cm}^2$

Total area =  $48\text{cm}^2$

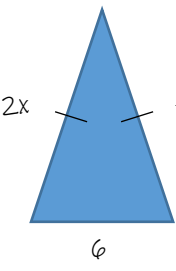
Perimeter: Find any missing sides by using the known ones, then add all sides together.

$$\text{Perimeter} = 9\text{cm} + 7\text{cm} + 4\text{cm} + 3\text{cm} + 5\text{cm} + 4\text{cm} = 32\text{cm}$$

### Problem solving with area and perimeter

Area and perimeter often link other topics in Maths questions. This could involve algebra, for example collecting like terms or solving equations, or it could involve money, time, and many others. You need to consider what you know about that topic and how working out the area/perimeter of the shape could be helpful.

e.g. Write down perimeter of this shape in its simplest form.



As two sides of the triangle are marked, we can see that it must be an isosceles triangle (2 sides are equal), so the missing side must also be 2x.

$$\text{Perimeter} = 2x + 2x + 6$$

$$= 4x + 6$$