Year 8- Geometry – Area of Trapezia and Circles

Essential knowledge

- Find the area of common 2D shapes
- Find the area of trapezia
- Find the perimeter and area of compound shapes
- Find the area of a circle

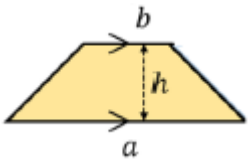
Key Vocabulary

Congruent: The same
Area: Space inside a 2D object
Perimeter: Length around the outside of a 2D object
Pi (π): The ratio of a circle's circumference to its diameter.
Perpendicular: At an angle of 90°to a given surface
Formula: A mathematical relationship/ rule given in symbols.
E.g. b x h = area of rectangle/ square
Sector: A part of the circle enclosed by two radii and an arc.

Prior learning links

Area and Perimeter of Shapes (Y6)
Addition and Multiplication Problems (Y7)
Geometric Notation (Y7)

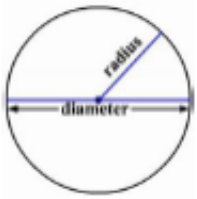
Area of Trapezia



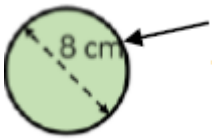
Trapezia - $\frac{a+b}{2} \times h$

. Add together the two parallel sides
. Divide them by 2
. Multiply by the perpendicular height

Area of Circles



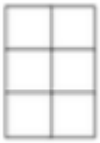
Circle $-\pi r^2$
(π multiplied by the square of the radius)



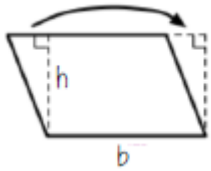
Diameter = 8cm
Radius = 4cm
$\pi \times radius^2$
$\pi \times 4^2$
$\pi \times 16$
$16\pi\ cm^2$ (non calculator)
$50.3\ cm^2\ (3\ s.f)$

It is really important to round your answer correctly if you are asked to round to decimal places or significant figures.

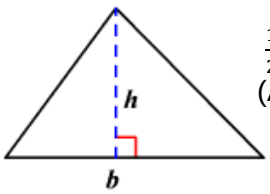
Rectangles, Triangles and Parallelograms



Rectangle – Base x Height

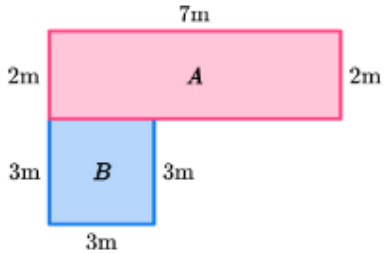


Parallelogram –
Base x Perpendicular Height
(identify the height that meets the base at a right angle)



Triangle –
$\frac{1}{2}$ x Base x Perpendicular Height
(A triangle has half the area of the rectangle it could fit inside).

Area of Compound Shapes



Area of Shape A
(7m × 2m)
$14m^2$

Area of Shape B
(3m × 3m)
$9m^2$

Split the shape into known shapes
Calculate the areas separately
Add together to find total area. √

Area of Compound Shape

$23m^2$

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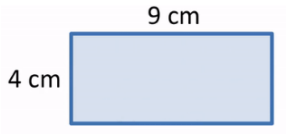
Prior learning links

Find the area and perimeter of this shape:



Calculate:

0.5 x 12 x 8 =

15^2=

Key Vocabulary

Define the following key words:

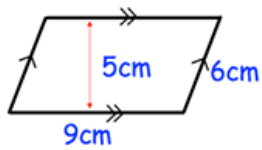
Area -

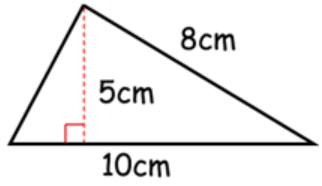
Perpendicular Height -

Radius -

Area of Known Polygons

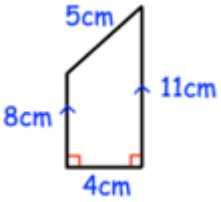
Calculate the area of the following shapes:

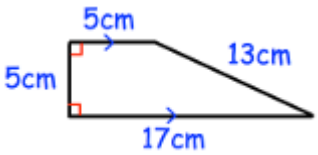




Area of Trapezia

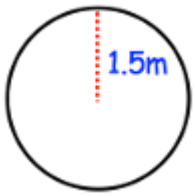
Find the area of these trapezia:

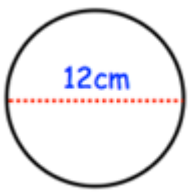




Area of a Circle

Calculate the area of these circles, leaving your answers in terms of π:





Area of Compound Shapes

Calculate the area and perimeter of these shapes: