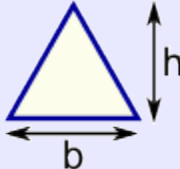
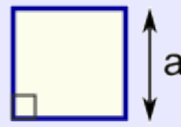
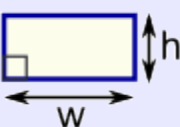
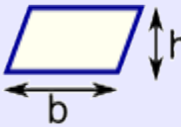
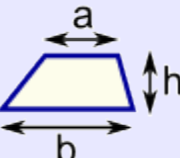

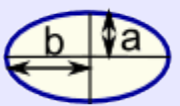
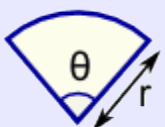


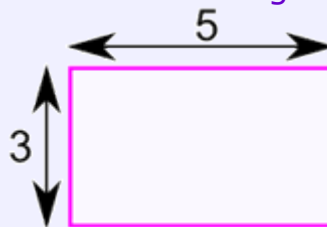
# Area of Plane Shapes

Learn more about [Area](#), or try the [Area Calculator](#).

	<p><u>Triangle</u> Area = <math>\frac{1}{2} \times b \times h</math> b = base h = vertical height</p>		<p><u>Square</u> Area = <math>a^2</math> a = length of side</p>
	<p><u>Rectangle</u> Area = <math>w \times h</math> w = width h = height</p>		<p><u>Parallelogram</u> Area = <math>b \times h</math> b = base h = vertical height</p>
	<p><u>Trapezoid (US)</u> <u>Trapezium (UK)</u> Area = <math>\frac{1}{2}(a+b) \times h</math> h = vertical height</p>		<p><u>Circle</u> Area = <math>\pi \times r^2</math> Circumference = <math>2 \times \pi \times r</math> r = radius</p>
	<p><u>Ellipse</u> Area = <math>\pi ab</math></p>		<p><u>Sector</u> Area = <math>\frac{1}{2} \times r^2 \times \theta</math> r = radius <math>\theta</math> = angle in <b>radians</b></p>

Note: **h** is at [right angles](#) to **b**: 

Example: What is the area of this rectangle?



The formula is:

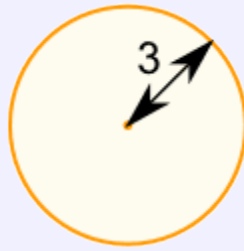
$$\text{Area} = w \times h$$

w = width  
h = height

We know **w = 5** and **h = 3**, so:

$$\text{Area} = 5 \times 3 = \mathbf{15}$$

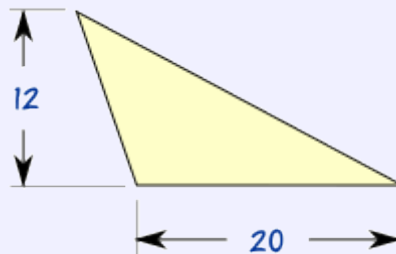
Example: What is the area of this circle?



$$\text{Radius} = r = 3$$

$$\begin{aligned} \text{Area} &= \pi \times r^2 \\ &= \pi \times 3^2 \\ &= \pi \times (3 \times 3) \\ &= 3.14159... \times 9 \\ &= \mathbf{28.27} \text{ (to 2 decimal places)} \end{aligned}$$

Example: What is the area of this triangle?



$$\text{Height} = h = 12$$

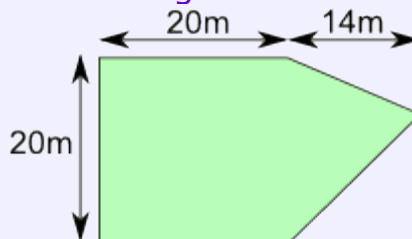
$$\text{Base} = b = 20$$

$$\text{Area} = \frac{1}{2} \times b \times h = \frac{1}{2} \times 20 \times 12 = \mathbf{120}$$

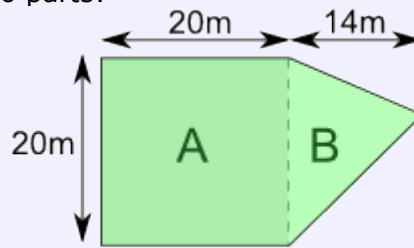
A harder example:

Example: Sam cuts grass at \$0.10 per square meter

How much does Sam earn cutting this area:



Let's break the area into two parts:



Part A is a square:

$$\text{Area of A} = a^2 = 20\text{m} \times 20\text{m} = 400\text{m}^2$$

Part B is a triangle. Viewed sideways it has a base of 20m and a height of 14m.

$$\text{Area of B} = \frac{1}{2}b \times h = \frac{1}{2} \times 20\text{m} \times 14\text{m} = 140\text{m}^2$$

So the total area is:

$$\text{Area} = \text{Area of A} + \text{Area of B} = 400\text{m}^2 + 140\text{m}^2 = 540\text{m}^2$$

Sam earns \$0.10 per square meter

$$\text{Sam earns} = \$0.10 \times 540\text{m}^2 = \$54$$