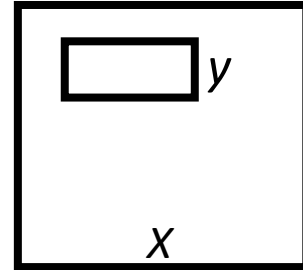


## Section 1: Simultaneous equations



### Exercise level 3

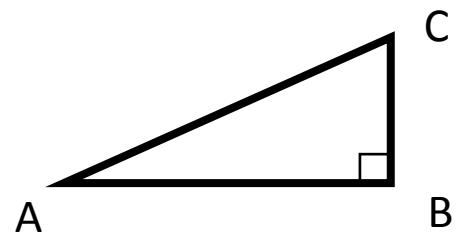
- The diagram shows a plan of a square lawn, with a rectangular flowerbed cut from it. The flowerbed is half the length of the lawn. The lawn is  $x$  m long, and the flowerbed is  $y$  m in width.



I have 100 m of plastic ‘lawn edging’ which I intend to use on all 4 sides of the lawn, and also all 4 sides of the flowerbed. I also have a packet of grass seed, which states that it will cover  $279 \text{ m}^2$ . What should be the dimensions of each of the lawn and flowerbed?

- For centuries, people have used the properties of right-angled triangles to set out building works accurately.

In the diagram, a 40 m length of rope is used to set out a right-angled triangle ABC. The length of rope AC is  $h$  m, and the length of rope AB is 2 m shorter than AC. The length of the remaining part of the rope BC is  $x$  m. The area of the triangle ABC is  $60 \text{ m}^2$ . Find the possible dimensions of the triangle.



- A fishtank is 30 cm deep, and is formed from a cuboid with horizontal dimensions  $x$  cm by  $y$  cm. Find formulae for the surface area (the tank has no lid) and the volume of the tank.  
If the surface area is  $6300 \text{ cm}^2$  and the volume is  $45000 \text{ cm}^3$ , find the size of the tank.