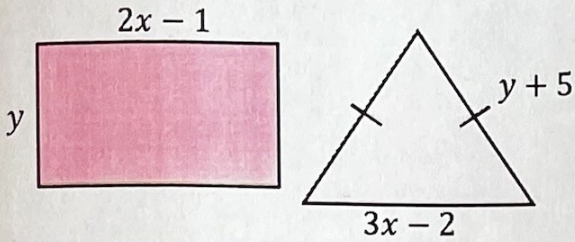


**Solving Geometric Problems with Simultaneous Equations**

(a) The square and the triangle both have a perimeter of 40 cm. Find the values of  $x$  and  $y$ .



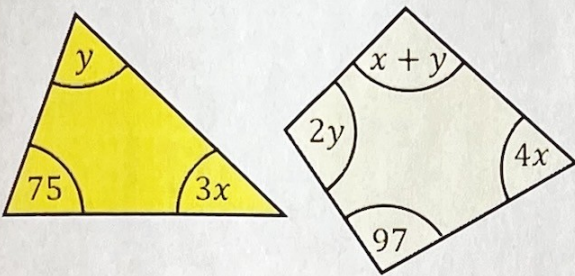
$$4x - 2 + 2y = 40$$

$$3x - 2 + 2y + 10 = 40$$

$$x = 10$$

$$y = 1.$$

(b) Work out the values of  $x$  and  $y$ .



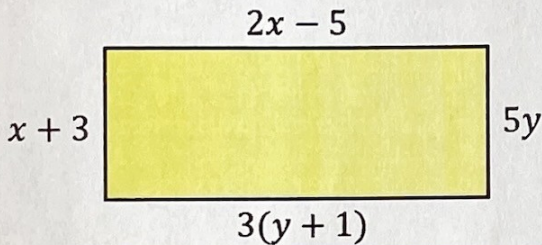
$$3x + y + 75 = 180$$

$$x + y + 4x + 2y + 97 = 360$$

$$x = 13$$

$$y = 66$$

(c) Here is a rectangle. By first finding the value of  $a$  and the value of  $b$ , find the area of the rectangle.



$$2x - 5 = 3y + 3$$

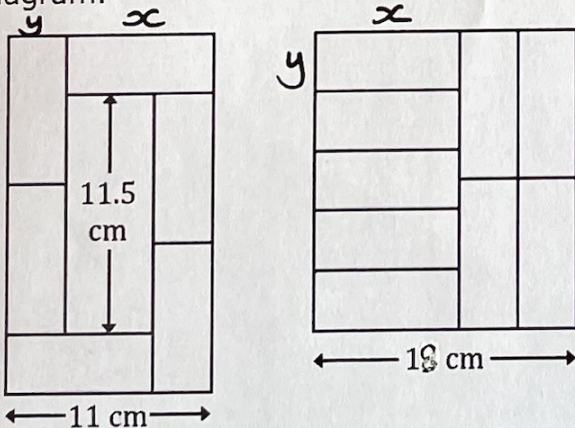
$$5y = x + 3$$

$$x = 7$$

$$y = 2$$

$$\text{Area} = 90 \text{ units}^2$$

(d) These shapes are made of congruent rectangles of length  $x$  and width  $y$  where  $x > y$ . Find the values of  $x$  and  $y$  for each diagram.



(i)  $x + y = 11$   
 $2x - y = 11.5$   
 $x = 7.5, y = 3.5$

(ii)  $x + 2y = 18$   
 $5y = 2x$   
 $x = 10, y = 4$