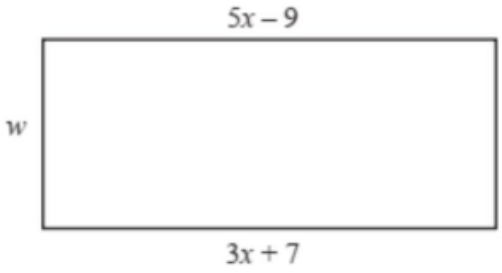
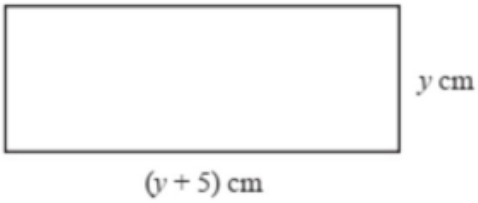
Past Papers Worksheet P2 Area and Perimeter (Algebra) IGCSE Mathematics 0580

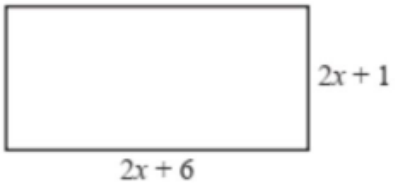
1. In this part, all measurements are in metres.
   The diagram shows a rectangle.
   The area of the rectangle is $310m^2$.
   Work out the value of w. [4]
   0580/42/M/J/18 Q4(b)

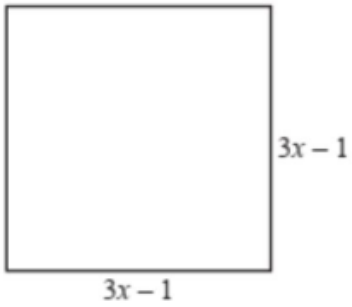


2. The area of the rectangle is $84cm^2$. Find the perimeter.
   [5]
   0580/43/M/J/18 Q5(b)(ii)



3. In this part, all lengths are in centimetres

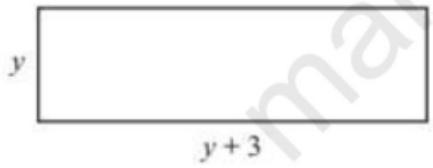


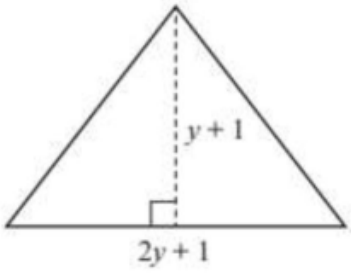


Find the value of x when the perimeter of the rectangle is equal to the perimeter of the square. [3]

0580/42/M/J/17 Q7) (a)(i)

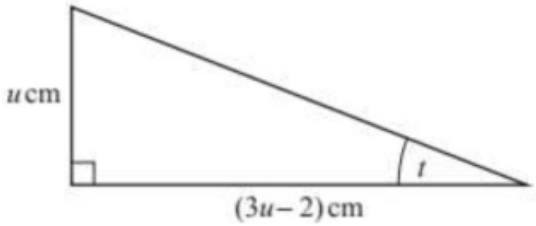
4. The area of the rectangle and the area of the triangle are equal. Find the value of y. [4]





0580/43/O/N/15 Q7(b)

5. The area of the triangle is 2.5cm^2.



(i) Show that $3u^2 - 2u - 5 = 0$ [2]

(ii) Factorise $3u^2 - 2u - 5$ [2]

(iii) ~~Find the size of angle t~~. [3]

0580/43/O/N/15 Q7(c)

6. The difference between the areas of the two rectangles is 62cm^2.

(i) Show that $x^2 + 2x - 63 = 0$. [3]

(ii) Factorise $x^2 + 2x - 63$. [2]

(iii) Solve the equation $x^2 + 2x - 63 = 0$ to find the difference between the perimeters of the two rectangles. [2]

0580/41/M/J/19 Q7(b)

7. In the diagrams below, all the lengths are measured in centimetres.

The area of rectangle B is 8 cm^2 more than the area of square A.

(i) Show that $x^2 - 3x - 10 = 0$. [3]

(ii) Factorise $x^2 - 3x - 10$ [2]

(iii) Find the perimeter of square A. [2]

0580/47/M/J/14 Q7(a)

8. The diagram shows two rectangles.

The first rectangle measures x cm by y cm and has an area of 5 cm^2.

The second rectangle measures $(x + 2)$ cm by Y cm and has an area of 6 cm^2.

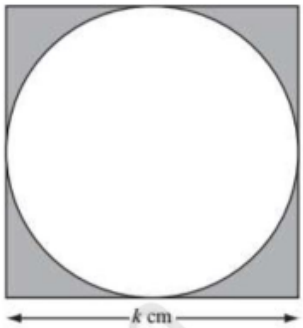
(i) When y + Y = 1, show that $x^2 - 9x - 10 = 0$. [4]

(ii) Factorise $x^2 - 9x - 10$ [2]

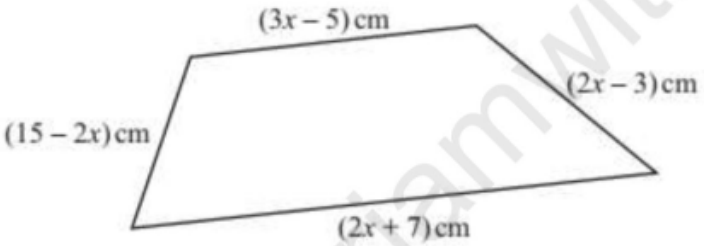
(iii) Calculate the perimeter of the first rectangle. [2]

0580/43/O/N/12 Q5(b)

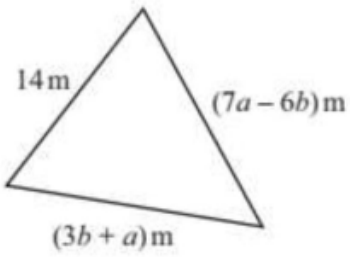
9. The diagram shows a square of side k cm.
   The circle inside the square touches all four sides of the square.
   (a) The shaded area is A cm^2.
   Show that $4A = 4k^2 - \pi k^2$. [2]
   (b) Make k the subject of the formula $4A = 4k^2 - \pi k^2$. [3]
   0580/21/M/J/11 Q16)

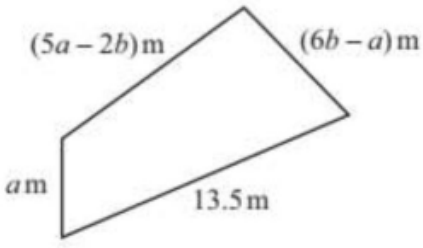


10. (i) Write an expression, in terms of x, for the perimeter of the quadrilateral.
    Give your answer in its simplest form.



(ii) The perimeter of the quadrilateral is 32 cm.
Find the length of the longest side of the quadrilateral. [3]
(b)The triangle has a perimeter of 32.5 m.





The quadrilateral has a perimeter of 39.75 m.

Write two equations in terms of a and b and simplify them.

Use an algebraic method to find the values of a and b.

Show all your working. [6]

0580/43/O/N/14 Q10)

Answers

Q1) 10	Q6) (i) $(2x + 3)(x - 1) - (x + 1)(x - 2) = 62$ (ii)$(x + 9)(x - 7)$ (iii)20
Q2) 38	Q7) (i) $(2x + 1)(x - 1) = (x + 1)^2 + 8$ (ii) $(x - 5)(x + 2)$ (iii)24
Q3) 4.5	Q8) (i) $5/(x + 6)/(x + 2) = 1$ (ii) $(x - 10)(x + 1)$(iii) 21
Q4) 1/3	Q9) (b) $\sqrt{\frac{4A}{(4-\pi)}}$ or $2\sqrt{\frac{A}{(4-\pi)}}$
Q5) (ii) (3u - 5)(u + 1) (iii) 29.1	Q10) (a) (i) $5x + 14$ (ii) 14.2 (b) 8a – 3b = 18.5 , 5a + 4b = 26.25, a=3.25 , b=2.5