

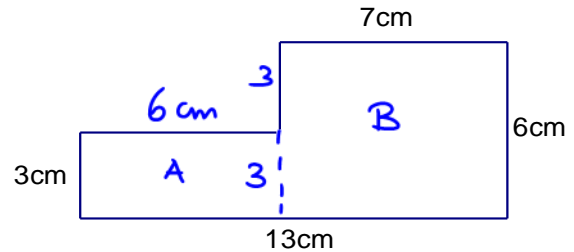
What is a composite figure?

A figure (or shape) that can be divided into more than one of the basic figures is said to be a composite figure (or shape).

Find the area and perimeter of the following figures:

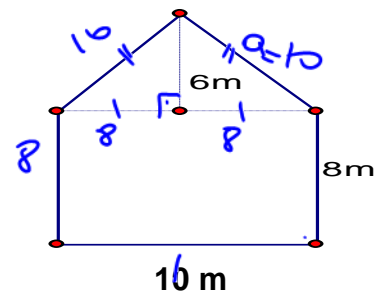
1. Perimeter: Add all sides
 $= 3 + 6 + 3 + 7 + 6 + 13$
 $= 38\text{cm}$

Total Area: $A_A + A_B$
 $= 6 \cdot 3 + 7 \cdot 6$
 $= 18 + 42$
 $= 60\text{cm}^2$



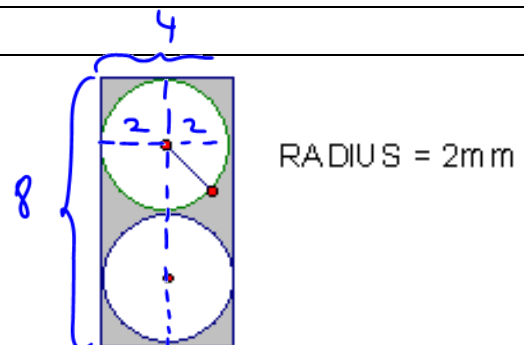
2. $a^2 = 6^2 + 8^2$
 $\sqrt{a^2} = \sqrt{100}$
 $a = 10\text{cm}$

Perimeter	Area
$P = 16 + 8 + 10 + 10 + 8$ $= 52\text{cm}$	$A = 16 \cdot 8 + \frac{16 \cdot 6}{2}$ $= 128 + 48$ $= 176\text{m}^2$



Find the area of the shaded region in the diagram below:

3. Shaded Region = Total Area - 2 · Area of Circle
 $= 8 \cdot 4 - 2 \cdot \pi \cdot (2)^2$
 $= 6.87\text{mm}^2$



Practice: Composite Area and Perimeter

Find the perimeter AND area of the following composite shapes:

<p>a.</p> <p> $P = 2 + 3 + 2 + 3 + 4 + 6$ $= \underline{20\text{cm}}$ $A_T = A_K + A_L$ $= 6 \cdot 2 + 3 \cdot 2$ $= 12 + 6$ $= \underline{18\text{cm}^2}$ </p>	<p>b.</p> <p> $P = 3 + 1 + 2 + 6 + 5 + 7$ $= \underline{24\text{m}}$ $A_T = A_K + A_L$ $= 6 \cdot 2 + 7 \cdot 3$ $= 12 + 21$ $= \underline{33\text{m}^2}$ </p>
<p>c.</p> <p> $P = 2 + 6 + 2 + 6 + 4 + 12$ $= 32\text{cm}$ $A_T = A_K + A_L$ $= 6 \cdot 2 + 6 \cdot 4$ $= 12 + 24$ $= 36\text{cm}^2$ </p>	<p>d.</p> <p> $P = 2 + 12 + 14 + 4 + 12 + 10$ $= 54\text{m}$ $A_T = A_K + A_L$ $= 12 \cdot 2 + 12 \cdot 4$ $= 24 + 48$ $= \underline{72\text{m}^2}$ </p>
<p>e.</p> <p> $P = 5 + 7 + 5 + 2 + 4 + 3 + 4 + 2$ $= 32\text{m}$ $A_T = A_K + A_L + A_M$ $= 4 \cdot 2 + 7 \cdot 1 + 4 \cdot 2$ $= 23\text{m}^2$ </p>	<p>f.</p> <p> $P = 6 + 4 + 4 + 10 + 6 + 12 + 4 + 2$ $= 48\text{m}$ $A_T = A_K + A_L + A_M$ $= 6 \cdot 2 + 2 \cdot 2 + 10 \cdot 6$ $= 12 + 4 + 60$ $= 76\text{m}^2$ </p>

ANSWERS: a. P=20, A=18, b. P=24, A=33, c. P=32, A=36, d. P=52, A=78, e. P=32, A=23, f. P=48, A=76

Practise: Composite Area and Perimeter

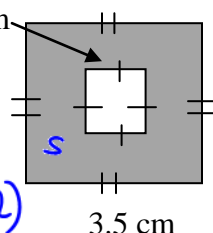
Find the area of the shaded region in each diagram below:

1.

Area of Shaded region = Total Area - Area of Inner square

$A_S = (3.5)(3.5) - (1.2)(1.2)$

$= \underline{\underline{10.81\text{cm}^2}}$



2.

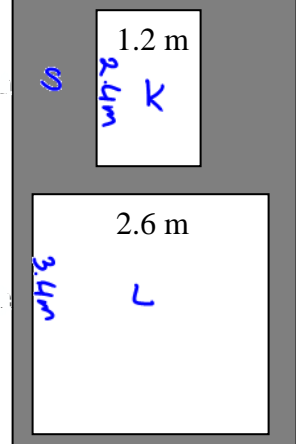
$A_S = A_T - A_K - A_L$

$= (7.3)(4.6) - (3.4)$

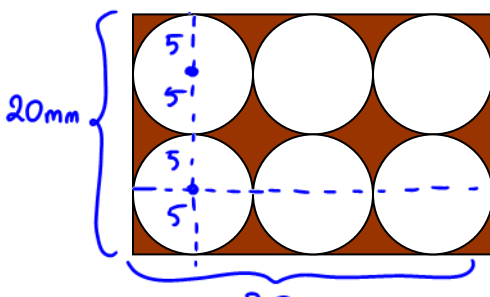
$A_S = A_T - A_K - A_L$

$= (7.3)(4.6) - (3.4)(2.6) - (2.4)(1.2)$

$= 21.86\text{m}^2$



3. Find the area of the non-shaded region and the area of the shaded region, if the radius of one circle is 5mm.



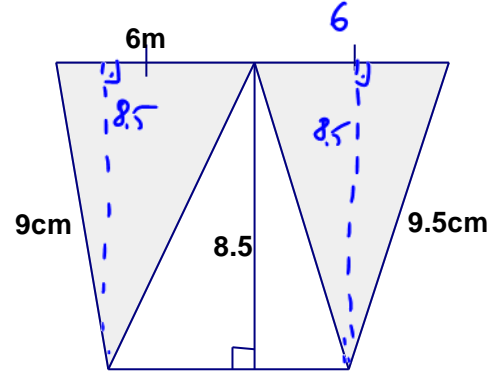
Area of non shaded region = $6 \cdot (\text{Area of one circle})$

$= 6(\pi r^2)$

$= 6(\pi \cdot 5^2)$

$= 471\text{mm}^2$

4. Find the area of the shaded region:



$A_{\text{Shaded}} = \frac{1}{2} \cdot 6 \cdot (8.5) + \frac{1}{2} \cdot 6 \cdot (8.5)$

$= 25.5 + 25.5$

$= \underline{\underline{51\text{cm}^2}}$