

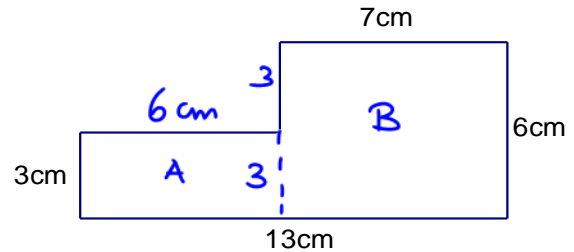
What is a composite figure?

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:

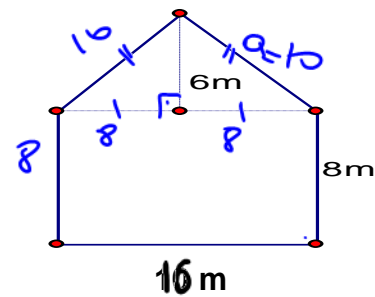
1. Perimeter: Add all sides  
 $= 3 + 6 + 3 + 7 + 6 + 13$   
 $= 38\text{cm}$

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



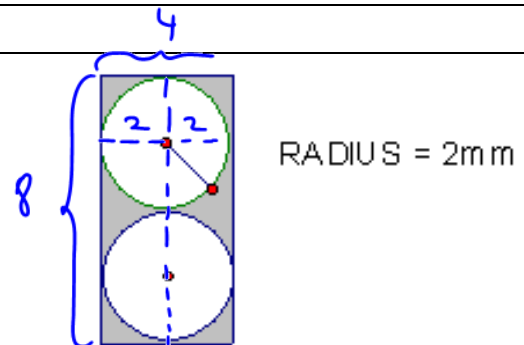
2.  $a^2 = 6^2 + 8^2$   
 $\sqrt{a^2} = \sqrt{100}$   
 $a = 10\text{m}$

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



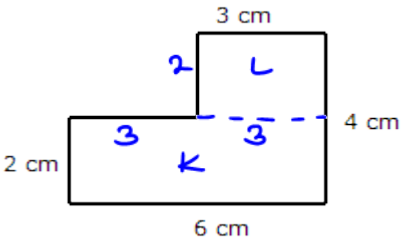
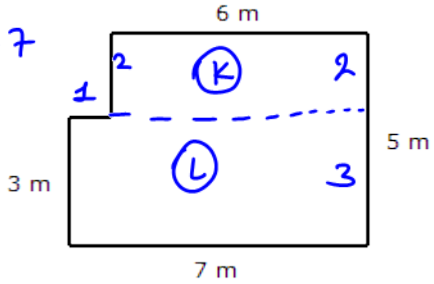
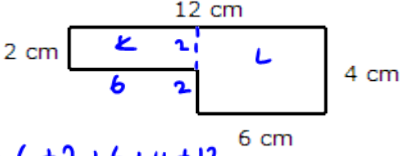
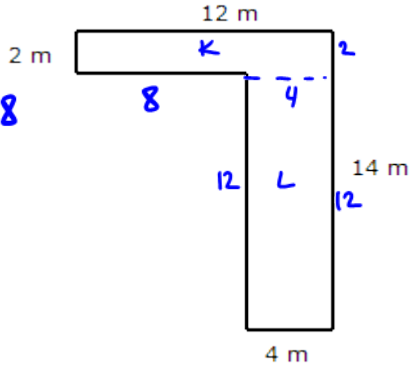
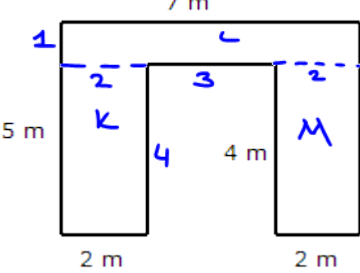
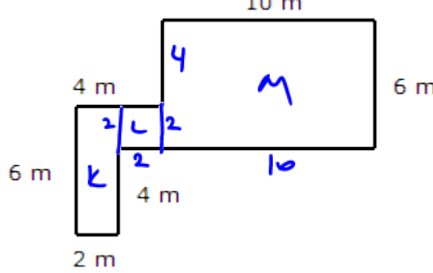
Find the area of the shaded region in the diagram below:

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><math>P = 2 + 3 + 2 + 3 + 4 + 6</math> <math>= \underline{20\text{cm}}</math></p> <p><math>A_T = A_K + A_L</math> <math>= 6 \cdot 2 + 3 \cdot 2</math> <math>= 12 + 6</math> <math>= \underline{18\text{cm}^2}</math></p>	<p>b.</p>  <p><math>P = 3 + 1 + 2 + 6 + 5 + 7</math> <math>= \underline{24\text{m}}</math></p> <p><math>A_T = A_K + A_L</math> <math>= 6 \cdot 2 + 7 \cdot 3</math> <math>= 12 + 21</math> <math>= \underline{33\text{m}^2}</math></p>
<p>c.</p>  <p><math>P = 2 + 6 + 2 + 6 + 4 + 12</math> <math>= 32\text{cm}</math></p> <p><math>A_T = A_K + A_L</math> <math>= 6 \cdot 2 + 6 \cdot 4</math> <math>= 12 + 24</math> <math>= 36\text{cm}^2</math></p>	<p>d.</p>  <p><math>P = 2 + 12 + 14 + 4 + 12 + 8</math> <math>= 52\text{m}</math></p> <p><math>A_T = A_K + A_L</math> <math>= 12 \cdot 2 + 12 \cdot 4</math> <math>= 24 + 48</math> <math>= \underline{72\text{m}^2}</math></p>
<p>e.</p>  <p><math>P = 5 + 7 + 5 + 2 + 4 + 3 + 4 + 2</math> <math>= 32\text{m}</math></p> <p><math>A_T = A_K + A_L + A_M</math> <math>= 4 \cdot 2 + 7 \cdot 1 + 4 \cdot 2</math> <math>= 23\text{m}^2</math></p>	<p>f.</p>  <p><math>P = 6 + 4 + 4 + 10 + 6 + 12 + 4 + 2</math> <math>= 48\text{m}</math></p> <p><math>A_T = A_K + A_L + A_M</math> <math>= 6 \cdot 2 + 2 \cdot 2 + 10 \cdot 6</math> <math>= 12 + 4 + 60</math> <math>= 76\text{m}^2</math></p>

ANSWERS: a. P=20, A=18, b. P=24, A=33, c. P=32, A=36, d. P=52, ~~A=70~~, e. P=32, A=23, f. P=48, A=76

**A=72**

**Practise: Composite Area and Perimeter**

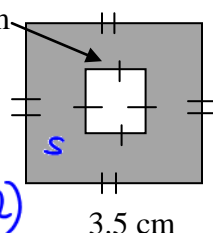
Find the area of the shaded region in each diagram below:

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.

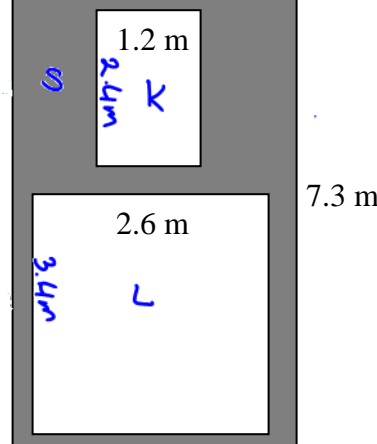
$A_s = A_T - A_K - A_L$

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

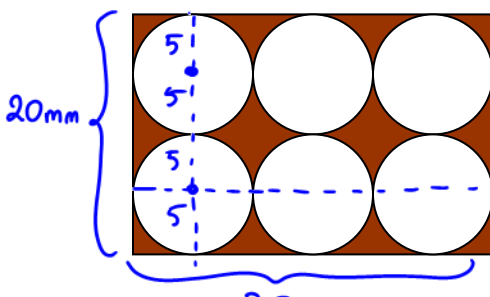
$A_s = A_T - A_K - A_L$

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

$= 21.86\text{m}^2$



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

$= 6(\pi r^2)$

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

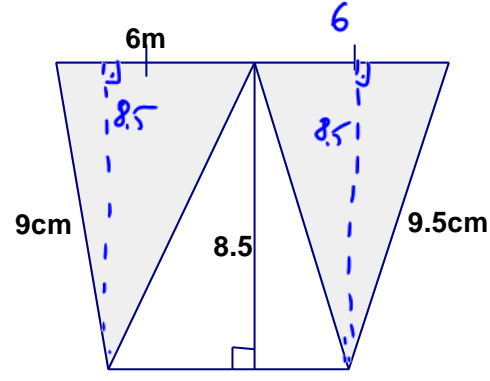
$= 471\text{mm}^2$

Area of rectangle =  $l \cdot w = (30)(20) = 600\text{mm}^2$

Area of Shaded region =  $A_{\text{rectangle}} - A_{\text{non-shaded}}$

$= 600 - 471 = 129\text{mm}^2$

4. Find the area of the shaded region:



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

$= 25.5 + 25.5$

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