1) Match the figures that have the same shaded area.
Solve the following problem sums. All essential workings must be shown clearly. Calculators are **allowed**.

2) Take \( \pi = \frac{22}{7} \) and solve the following questions.

(a) The figure shows a square with a quadrant cut out. Find the area of the shaded part.

\[
\text{Ans: } __________
\]

(b) Using the answer in (a), find the area of the shaded part.

\[
\text{Ans: } __________
\]

(c) Using the answer in (b), find the area of the shaded part.

\[
\text{Ans: } __________
\]
As much as we would love to show you everything, we cannot be showing you the best. 😊

Do drop by any JustEdu centre to view the full set!
**Worked Example 1**
The figure shows 3 identical circles overlapping one another where X, Y and Z are the centers of the 3 circles. Each shaded area is 60 cm². Find the area of the whole figure given that XY = YZ = 7 cm. (Take $\pi = \frac{22}{7}$)

**Solution:**

Area of one circle $\rightarrow \frac{22}{7} \times 7 \text{ cm} \times 7 \text{ cm} = 154 \text{ cm}^2$

Area of 3 circles $\rightarrow 3 \times 154 \text{ cm}^2 = 462 \text{ cm}^2$

Area of figure $\rightarrow 462 \text{ cm}^2 - (2 \times 60) \text{ cm}^2$

$= 462 \text{ cm}^2 - 120 \text{ cm}^2$

$= 342 \text{ cm}^2$

Or

Area of 1 circle - shaded area $\rightarrow 154 \text{ cm}^2 - 60 \text{ cm}^2 = 94 \text{ cm}^2$

$2 \times 94 \text{ cm}^2 = 188 \text{ cm}^2$

Area of figure $\rightarrow 188 \text{ cm}^2 + 154 \text{ cm}^2 = 342 \text{ cm}^2$

The area of the whole figure is $342 \text{ cm}^2$. 
3) The fan below is made up of two quadrants overlapping each other. The area of the shaded part is 40 cm$^2$. Find the total area of the unshaded part. (Take $\pi = \frac{22}{7}$)

![Diagram of a fan made up of two quadrants]

Ans:__________

4) The figure shows a rectangle ABCD overlapping a circle (centre A) with radius 7 m. If AB is twice AD, find the perimeter of the figure. (Take $\pi = \frac{22}{7}$)

![Diagram of a rectangle overlapping a circle]

Ans:__________
5) The figure below shows a pattern made up of 4 identical squares, 4 semicircles and 4 quadrants.

(a) Find the total area of the shaded regions.
(b) Find the total perimeter of the shaded regions.

(Take \( \pi = \frac{22}{7} \))

Ans: (a) _______
(b) _______
Do drop by our centre to view the full set of materials.
6) The figure below is made up of 2 identical small semicircles enclosed in a large semicircle. The area of region QOR is 76 cm² and its perimeter is 35.8 cm. Given that PQ = QR = RS = 10 cm, find

(a) the area of the shaded region and
(b) the perimeter of the shaded region.

(Take \( \pi = 3.14 \))

Ans: (a)_______
(b)_______
7) The figure below is made up of a big quadrant ONP, a small quadrant OMR and a square OMQR.
The area of the big quadrant is thrice the area of the small quadrant.

Given that the length of NO is 72 cm, what is the area of the shaded part? Leave your answer in terms of $\pi$. 

Ans:__________
Calculators are allowed.

1) A piece of wire is bent to form 6 similar semicircles as shown in the figure. The area of the enclosed rectangle is $32 \text{ cm}^2$.

Find the length of the piece of wire. (Take $\pi = 3.14$)

Ans:__________
2) The figure shown is made up of 4 identical circles, which are drawn in such a way that each circle intersects two other circles. The 4 circles meet at a common point E. Point E is also the centre of the square ABCD. The length of the square ABCD is 14 cm.

(a) Find the area of the shaded part.
(b) Find the perimeter of the shaded part.
(Take \( \pi = \frac{22}{7} \))

Ans: (a) ________

(b) ________
*3) The figure below is made up of two semi-circles that overlapped each other.

Express the area of the shaded regions in terms of \( \pi \).

\[
16 \text{ cm} \quad 20 \text{ cm}
\]

Ans: ________
Do drop by our centre to view the full set of materials.
Do drop by our centre to view the full set of materials.
Do drop by our centre to view the full set of materials.
Oscar cut two triangles from a piece of rectangular paper as shown. The area of Triangle P is 25.5 cm² more than the area of Triangle Q. The length and breadth of the paper is 17 cm and 9 cm respectively.

Find the base of Triangle Q.

Ans:__________
6) In the diagram below, ABCD is a rectangle. The area of Triangle ABE is 50 m² and the area of Triangle BCE is 34 m².

Given that BE = EC and DF = FC, find the area of AEFD.

Ans:__________
Calculators are allowed.

The figure below is made up of Rectangle BCDE, Triangle ABD and Square ABEF. The length of Square ABEF is 48 cm.

Find the difference between the shaded areas.

Find the difference between the shaded areas.

Ans:__________

Ans: 1152 cm²
In the figure below, two triangles are enclosed in Rectangle WXYZ.
The length of VZ: WZ is 1: 2 and the length of ZU : ZY is 1 : 4.
The length of WX is 48 cm.

Given that the area of Triangle UVW is 27 cm², find the perimeter of Rectangle WXYZ.

Ans:__________
Do drop by our centre to view the full set of materials.