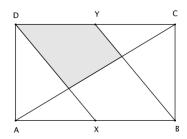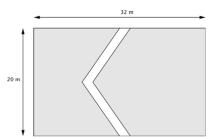# 1 Introduction

The shapes are back in the world of Flatland! Shawn the Square and Jeremy the Triangle have lots of problems to solve around the corner :).
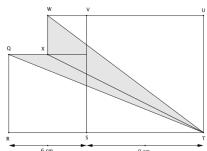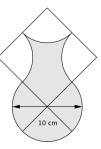
2 Area

1. The figure below and to the left shows a rectangular plot of land ABCD. The midpoints of AB and CD are points X and Y respectively. Shawn the Square owns the shaded portion and is bragging about it. Jeremy the Triangle says "You don't even have 1/5 of the land". How much land does Shawn own?
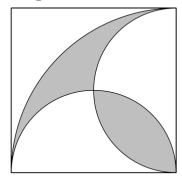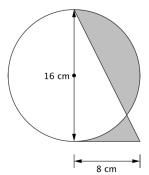

2. The figure above and to the right shows Shawn's garden with a walking path of width 2 m. Find the total area without the path.

3. The picture below shows the layout of a house. Jeremy the Triangle fires a flamethrower from corner T. What fraction of the house has been completely destroyed?

4. Shawn the Circle was experimenting with squares and circles, so he drew the figure above and to the right. It is made up of a square and three quarter circles. What is the area of the shaded part?

5. Shawn, back to his experiments in combining circles and squares, drew the figure below and to the left. It shows a quarter circle of radius 40 cm and two identical semicircles. Find the total shaded area of the figure.
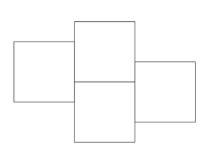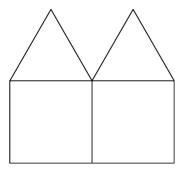

6. Jeremy decides to join in on the fun, and combines a triangle and a circle. Find the difference between the two shaded areas in the picture to the right.
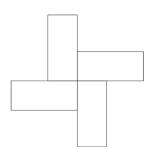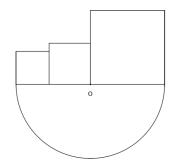
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3   Perimeter

1. Srikar the Square wants to build his dream house. He makes a blueprint below. Each room in the blueprint has 3-cm squares. What is the perimeter of Srikar's house?
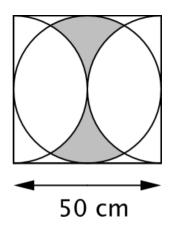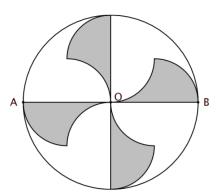
2. Amber the Angular Architect made a townhouse. The townhouse is made up of 2 identical squares and 2 identical equilateral triangles. The perimeter of the figure is 192 cm. What is the length of the square?

3. The figure is made up of 4 identical rectangles each measuring 27 cm by 12 cm. Find the perimeter of the figure.

4. The figure below is made up of 3 squares and a semicircle of diameter 36 cm. O is the center of the semicircle. Find the perimeter of the figure.

5. The figure below is made up of a square, a circle and 2 identical semicircles. Find the perimeter of the shaded parts in the figure below.

6. The figure shows a big circle and eight identical quarter arcs. Point O is the center of the circle, and the diameter AB is 20 cm long. Find the total area and the perimeter of the shaded parts of the figure.