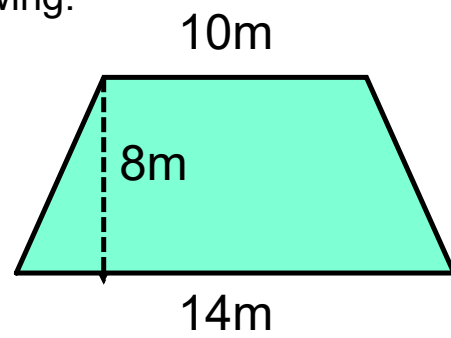
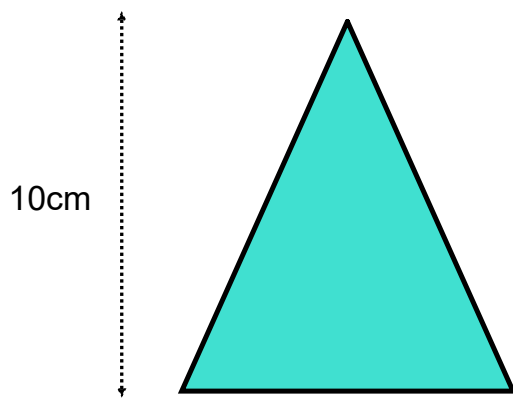


Warm Up

Find the area and perimeter of the following:



A triangle with an area of  $60\text{cm}^2$  has a height of  $10\text{cm}$ ,  
what is the base length?



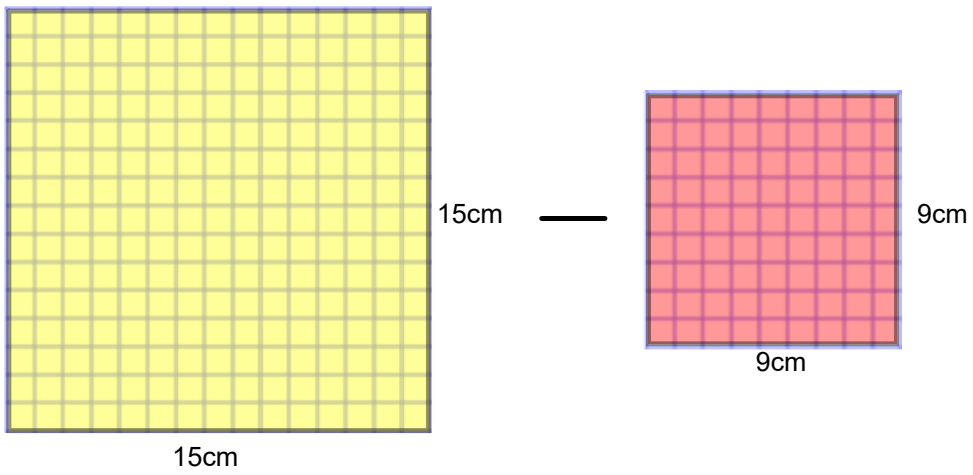
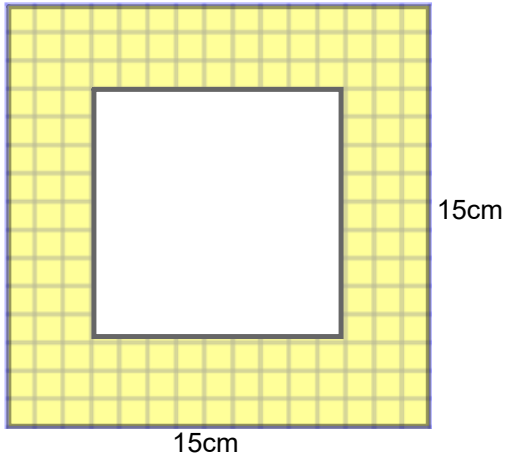
# Composite Shapes - Area and Perimeter

(more than one shape combined together)

Learning Goal:

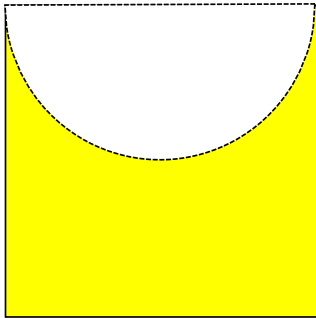
By the end of today, I will be able to calculate the area and perimeter of two or more traditional shapes put together to make a larger more complex shape.

Find the Area that is shaded Yellow



With Composite Shapes (more than one traditional shape combined), we can ADD or SUBTRACT areas, to determine the desired amount.

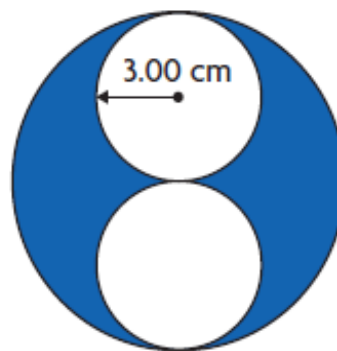
For the following **square**, find the area of the yellow shading (the missing piece is a half circle).



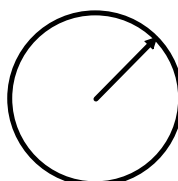
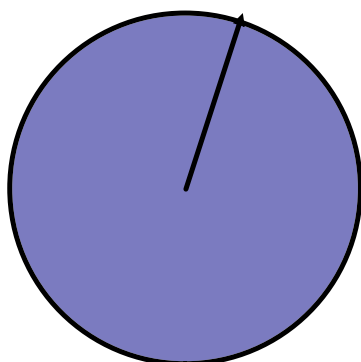
12cm

Find the perimeter of the yellow shape.

Matti is designing a logo in his graphic arts class. How can Matti calculate the area of the blue section?



**Matti's Solution**



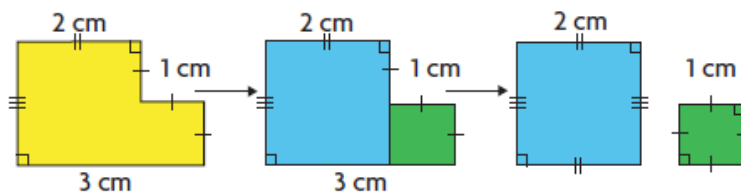
## In Summary

### Key Idea

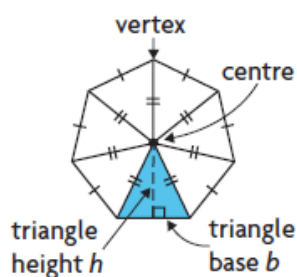
- You can determine the area or perimeter of a geometric shape by decomposing it into simpler shapes whose formulas you know.

### Need to Know

- The area of a shape created by joining smaller shapes is equal to the combined area of the smaller shapes. For example, the area of the yellow shape is equal to the sum of the areas of the blue and green shapes.

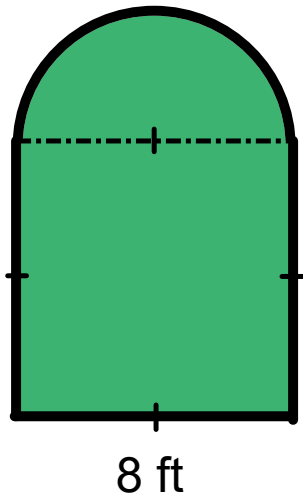


- When one shape is removed from another, the area of the remaining shape is equal to the area of the original shape minus the area of the shape that was removed.
- To calculate the perimeter of a new shape created from other shapes, determine whether some of the original shapes' sides are either duplicated or no longer part of the new perimeter. The perimeter of the yellow shape is not the same as the sum of the perimeters of the blue and green shapes.
- The formula for the perimeter of a regular polygon is  $P = n \times s$ , where  $n$  is the number of sides and  $s$  is the length of each side.
- To calculate the area of a regular polygon, divide it into triangles, and then, add their areas. Form the triangles by drawing a line from the centre to each vertex. The polygon side length is the base of each triangle, and the distance from the centre to the middle of each side is the height.





Find the perimeter of the following object.



Consolidation Questions:

Grade 9 Academic - page 440-41 #1,2,3,5,10