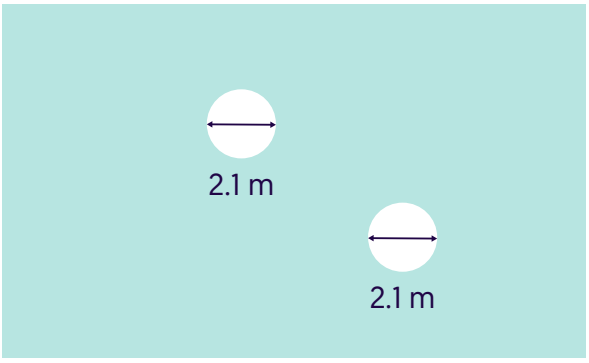
Area of compound shapes involving circles

Worksheet | Answers

Use $\pi = 3.14$ in the following calculations

1. The diagram shows the plan of a rectangular garden with two circular flower beds. Apart from the flower beds, the rest of the garden is covered in grass. Calculate the area of the grass, giving your answer correct to 1 decimal place.



Area of rectangle = 10.1 x 22
= 222.2 m^2

Radius of each circle = 1.05 m
Area of each circle = 1.052 x 3.14
= 3.46185 m^2

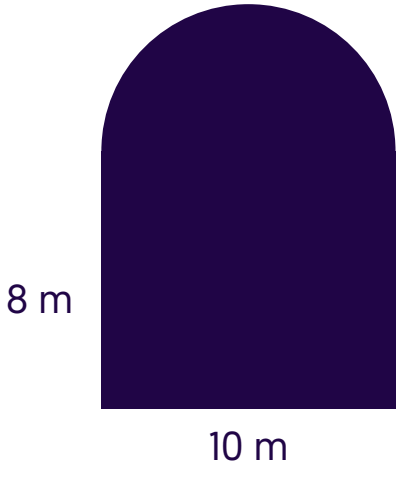
Area of grass = 222.2 – (2 x 3.46185)
= 215.2763 m^2 = 215.3 m^2 (1 d.p.)

2. A tunnel 200m long is dug. The cross-section is made up of a rectangle and a semicircle. What is the area of the cross-section of the tunnel? Give your answer correct to 2 decimal places.

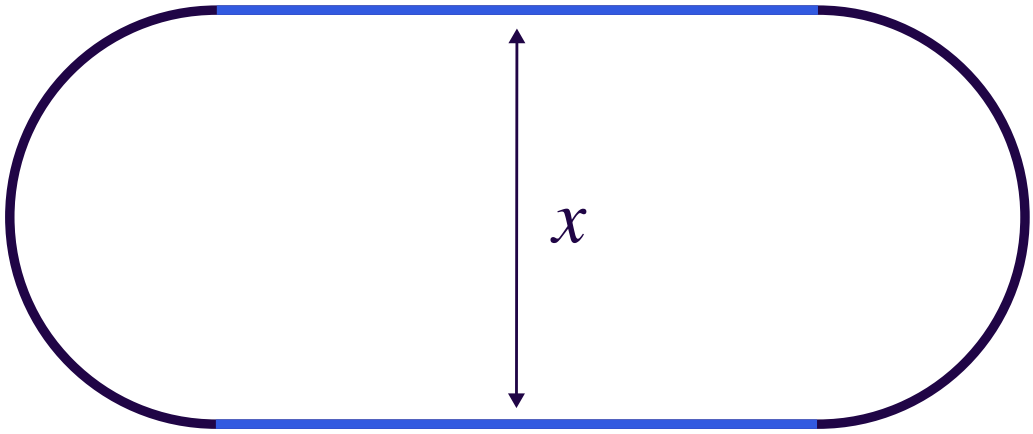
Area of rectangle = 8 x 10 = 80 m^2

Radius of semi-circle = 5 m
Area of semi-circle = (5^2 x 3.14) ÷ 2 = 39.25 m^2

Total area = 80 + 39.25 = 119.25 m^2



3. A racing track has the following shape:



The straight lengths which are blue in the diagram are 75 m long. Given that x = 40 m, what is the size of the area enclosed by the racing track?

Area of rectangular section = 75 x 40 = 3000 m^2

Radius of semi-circles = 20 m
Area of semi-circular areas = 20^2 x 3.14 = 1256 m^2

Total area = 4256 m^2