

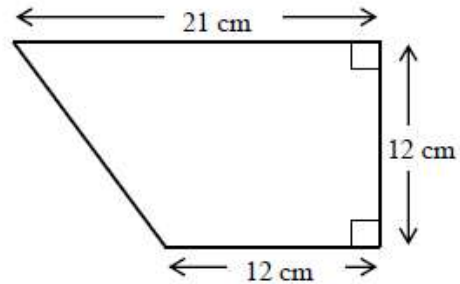


**Maths
Junior Certificate
Higher Level**

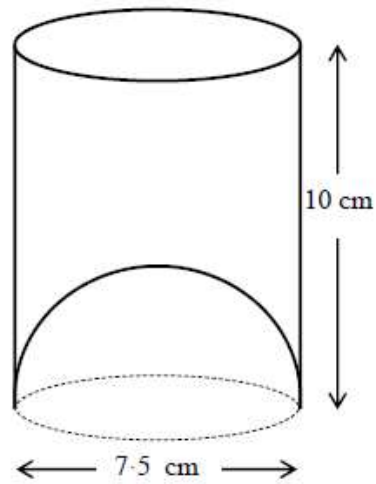
**Past Exam Questions on
Perimeter, Length and Area**

Q1 2012 Paper 2

1. (a) ✍ Find the perimeter of the shape shown in the diagram.



- (b) A drinking glass is in the shape of a cylinder of diameter 7.5 cm and of height 10 cm. It has a hemispherical base as shown in the diagram.



- (i) ✍ Calculate the curved surface area of the cylindrical part of the glass, correct to two decimal places.
- (ii) ✍ Calculate the total surface area of the glass correct to two decimal places.

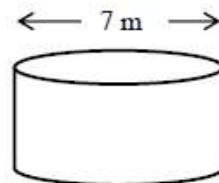
- (c) A large building has a flat roof of length 50 m and of width 40 m. On average there are 5 mm of rainfall on the roof in a week.



- (i) ✍ Calculate the average volume of rain that will fall on the roof in a week. Give your answer in m^3 .

The rain is harvested in a cylindrical tank of diameter 7 m.

- (ii) ✍ Calculate the average rise in the level of the water in the tank in a week.



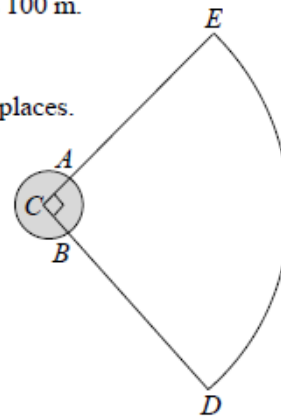
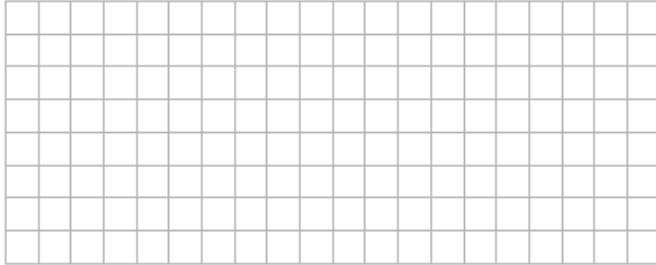
Give your answer in metres correct to two decimal places.

The tank is emptied when the water reaches a height of 3.38 m.

- (iii) ✍ How many times a year, on average, will the tank be emptied?

- (c) The diagram, not to scale, represents a shot-put zone in an athletics stadium. The area of CDE is a quarter of the area of a disc of centre C and of radius 100 m.

- (i) ✎ Calculate the area of CDE , correct to two decimal places.



The shot-put zone consists of a throwing zone and a landing zone. The throwing zone (shaded) is a disc of centre C and of radius 1 m.

- (ii) ✎ Calculate the area of the throwing zone, correct to two decimal places.



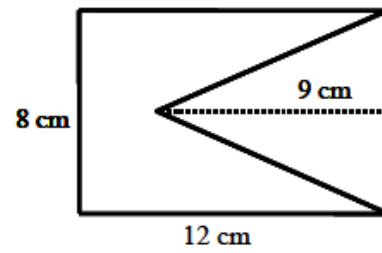
The landing zone is the unshaded area $ABDE$, which is part of CDE .

- (iii) ✎ Calculate the total area of the shot-put zone, correct to two decimal places.



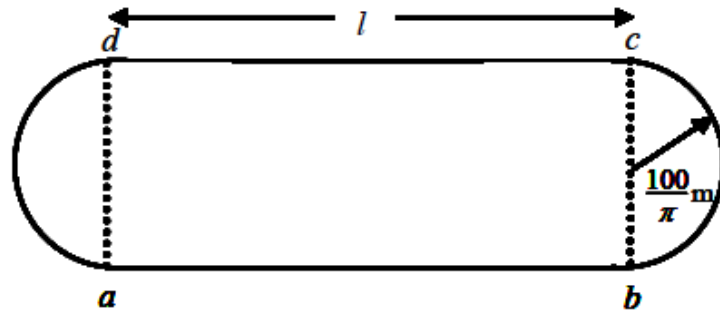
Q1 Part (a) 2010 Paper 2

1. (a) The diagram shows a rectangular piece of cardboard with a triangular section cut out.
✍ Calculate the area of the cardboard.



Q1 Part (b) 2010 Paper 2

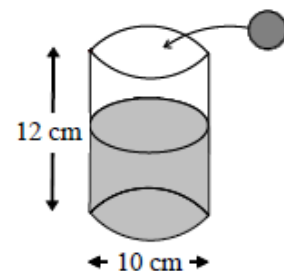
- (b) The diagram shows the perimeter of a running track, consisting of two straight sections of length l , and two semi-circular sections, at each end, of radius $\frac{100}{\pi}$ m, as shown.



- (i) ✍ Given that the perimeter of the track measures 400 m, find l .
- (ii) A 1500 m race starts at the point a and goes in the direction $abcd$.
✍ At what point does the race finish?
- (iii) An athlete completes this distance in 3 mins 26 sec.
✍ Find his average speed in m/s, correct to one decimal place.
- (c) A spherical golf ball has a diameter of 4 cm.

- (i) ✍ Find the volume of the golf ball in terms of π .

A cylindrical hole on a golf course is 10 cm in diameter and 12 cm deep. The hole is half full of water.



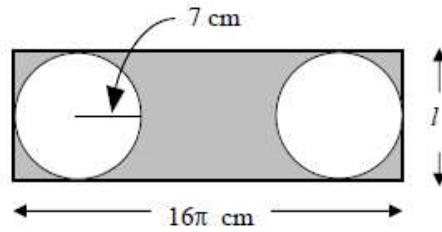
- (ii) ✍ Calculate the volume of water in the hole, in terms of π .

The golf ball is dropped into the hole.

- (iii) ✍ Find the rise in the level of the water, correct to two decimal places.

Q1 Part (c) 2007 Paper 2

- (c) A rectangular piece of metal has a width of 16π cm.
Two circular pieces, each of radius 7 cm, are cut from the rectangular piece, as shown.



- (i) Find the length, l , of the rectangular piece of metal.
- (ii) ✎ Calculate the area of the metal not used (i.e. the shaded section), giving your answer in terms of π .
- (iii) ✎ Express the area of the metal not used as a percentage of the total area.

Q1 Part (a) 2005 Paper 2

1. (a) (i) ✎ Find, correct to the nearest cm^2 , the area of a disc of radius 11 cm.
- (ii) ✎ Find, correct to the nearest cm^2 , the area of the shaded region in the diagram.

