MATHLETICS

Circles and Cylinders

Student Book - Series I-1

Mathletics Instant Workbooks

Circles and cylinders
Student Book - Series I

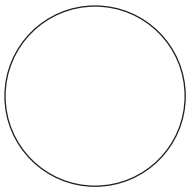
Contents

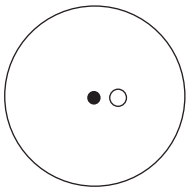
Author of The Topics and Topic Tests: AS Kalra

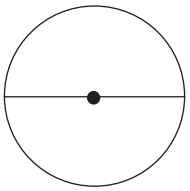
Circles and cylinders

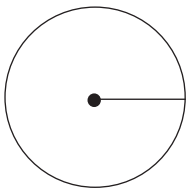
Topic 1: Parts of a circle

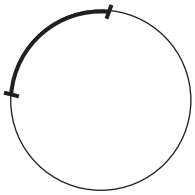
QUESTION **1** Name the part of the circle in the following diagrams.

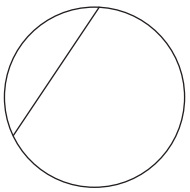
a 

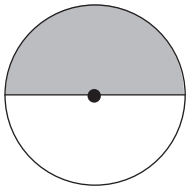
b 

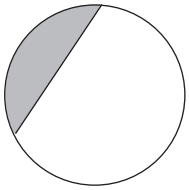
c 

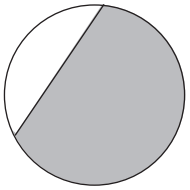
d 

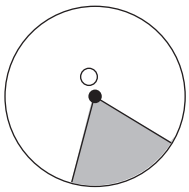
e 

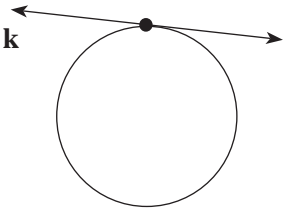
f 

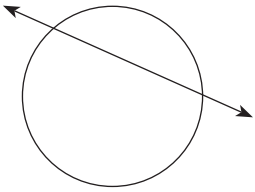
g 

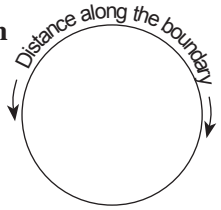
h 

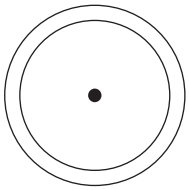
i 

j 

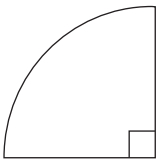
k 

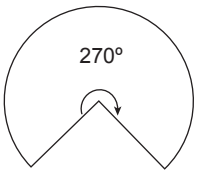
l 

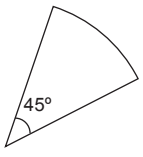
m 

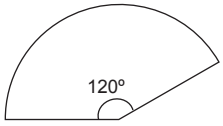
n 

QUESTION **2** Find the fraction of the circle given in the following diagrams.

a 

b 

c 

d 

QUESTION **3**

a If the diameter of a circle is 18 cm, find its radius. _____

b If the radius of a circle is 12 cm, what is its diameter? _____

Circles and cylinders

Topic 2: The circumference of a circle

Question 1 Calculate the circumference of the following circles correct to one decimal place. Use the calculator value of π.

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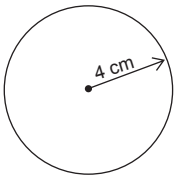

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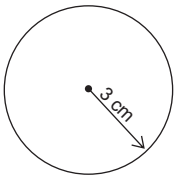

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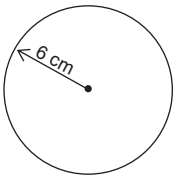

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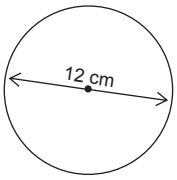

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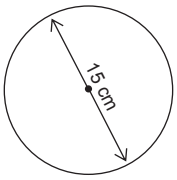

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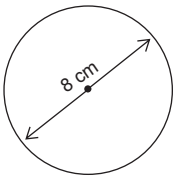
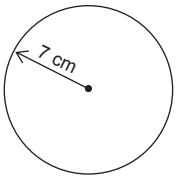


Question 2 Calculate the circumference of these circles using $\pi = \frac{22}{7}$.

a



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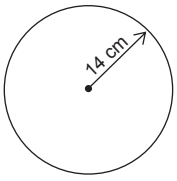

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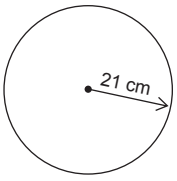

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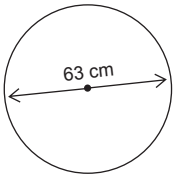

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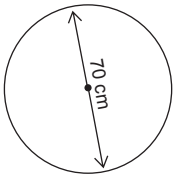

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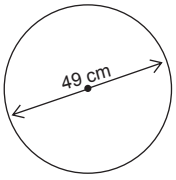

Question 3 Calculate the circumference of these circles using $\pi = 3.14$. (Answer correct to three significant figures.)

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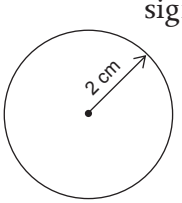

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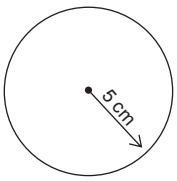

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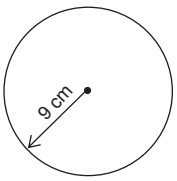

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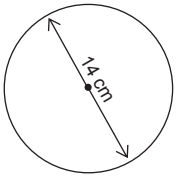

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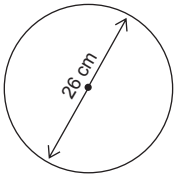

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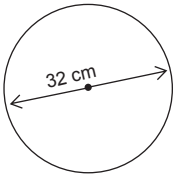

Question 4 Calculate the perimeter of these figures correct to two decimal places.

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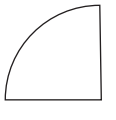

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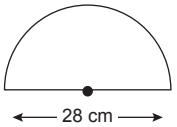

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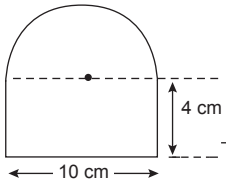

Circles and cylinders

Topic 3: The area of a circle

Question 1 Calculate the area of the following circles correct to one decimal place using the calculator value of π.

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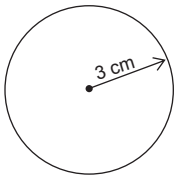

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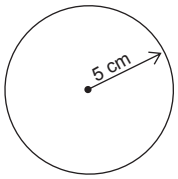

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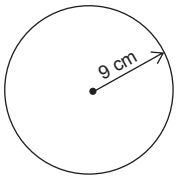

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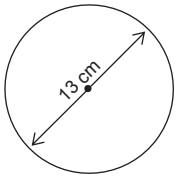

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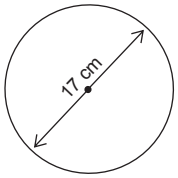

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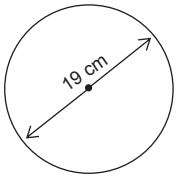

Question 2 Calculate the area of these circles using $\pi = \frac{22}{7}$.

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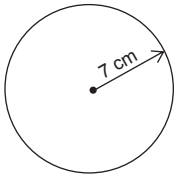

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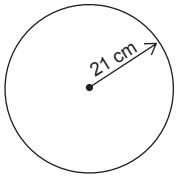

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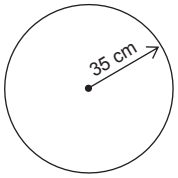

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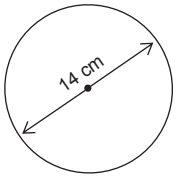

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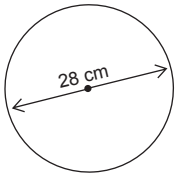

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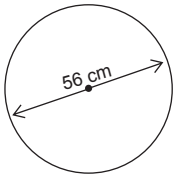

Question 3 Calculate the area of these circles using π = 3.14. (Answer correct to three significant figures.)

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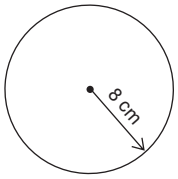

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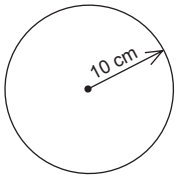

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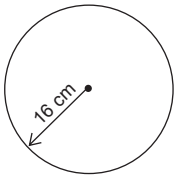

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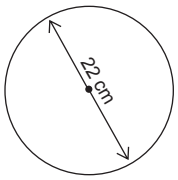

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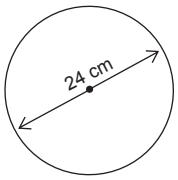

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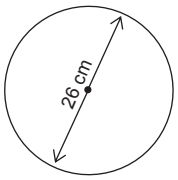
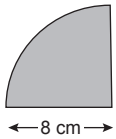


Question 4 Calculate the shaded area correct to one decimal place.

a



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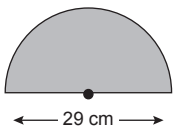
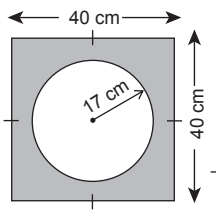


c

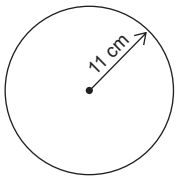


Circles and cylinders

Topic 4: Miscellaneous questions

QUESTION 1 Calculate the circumference correct to one decimal place.

a



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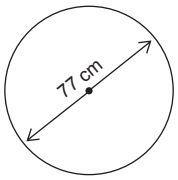

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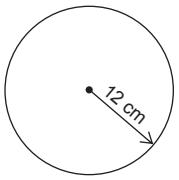
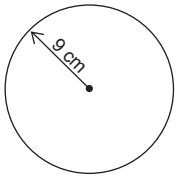


QUESTION 2 Calculate the area correct to two decimal places.

a



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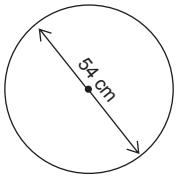

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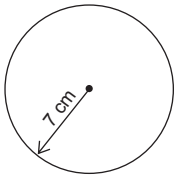
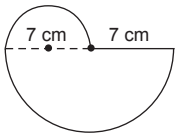


QUESTION 3 Calculate the perimeter of the following shapes correct to three significant figures.

a



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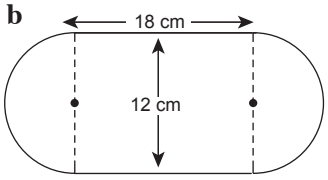
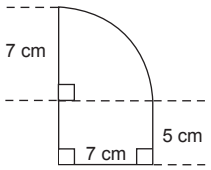
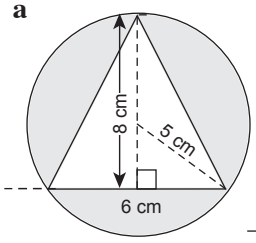


c



QUESTION 4 Calculate the shaded area of the following correct to two decimal places.

a



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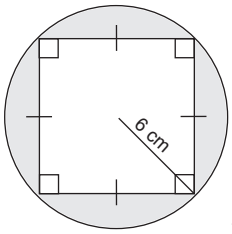

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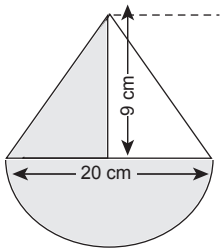

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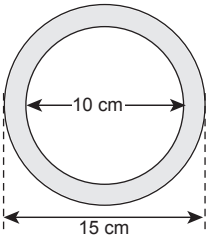
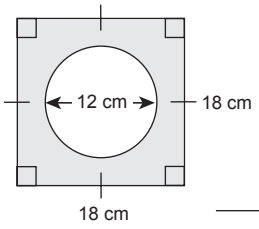
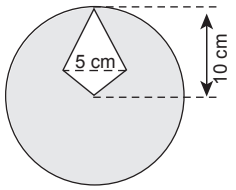


e



f

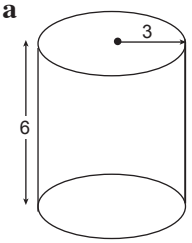


Circles and cylinders

Topic 5: The volume of a cylinder

QUESTION 1 Calculate the volume of these cylinders correct to two decimal places. All measurements are in centimetres.

a



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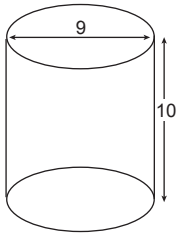

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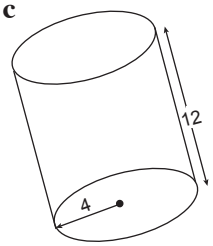

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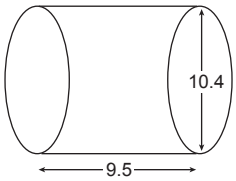
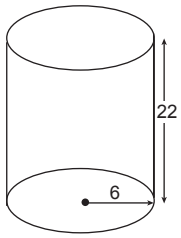


e



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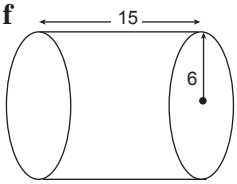
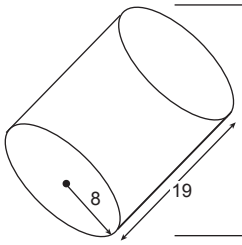
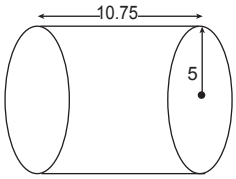


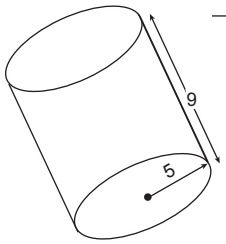
g



h

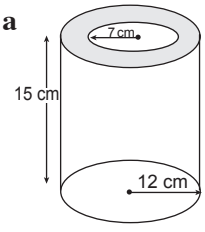


i



QUESTION 2 Calculate the volume to the nearest cm^3 of the following solids.

a



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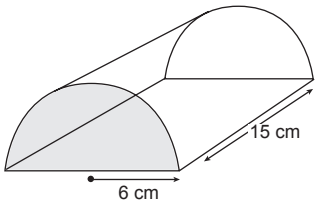

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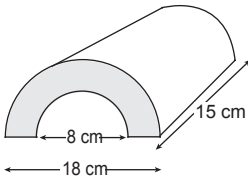


Circles and cylinders

Topic 6: Problem solving with circles and cylinders

1 A circular track has a radius of 28 m. Calculate the distance around the track. _____

2 Calculate the area of the circle formed by the above given circular track. _____

3 Calculate the radius of a circle with a circumference equal to 220 cm. _____

4 Find the volume of a can 16 cm in diameter and with 12 cm height. _____

5 The circumference of a circle is 200 cm. Find the area of the circle. _____

6 Find the circumference of a circle with diameter equal to 18 cm. _____

7 What distance do you ride in one turn of a merry-go-round when you sit 6.3 m from the centre? _____

8 The wheel of a bicycle has a radius of 25 cm. How far does the bicycle travel when its wheels make one complete turn? _____

9 What is the cooking area of a circular barbecue grill having a radius of 18 cm? _____

10 A revolving sprinkler sprays a lawn for a distance of 14 metres in all directions. How much area does the sprinkler water in one revolution? _____

11 Two cylindrical cans are both 25 cm high. One can has a base with a radius of 10 cm, and the other with a radius of 20 cm. Find the ratio of their volumes. _____

12 Find the circumference of a circle whose diameter is 68 cm. _____

13 Find the area of a round tablecloth if its diameter is 3 metres. _____

14 A circular ring has a radius of 1.5 metres. What is the perimeter of the ring? _____

Circles and cylinders

Topic Test — PART A

Instructions This part consists of 12 multiple-choice questions
Each question is worth 1 mark
Fill in only ONE CIRCLE for each question
Calculators are NOT allowed

Time allowed: 15 minutes **Total marks = 12**

						Marks
1	The circumference of a circle is given by the formula					
	(A) $\frac{2\pi}{r}$	(B) $\frac{2\pi}{d}$	(C) $2\pi r$	(D) $2\pi d$		1
2	The area of a circle is given by the formula					
	(A) πr^2	(B) πd^2	(C) $\frac{\pi}{r^2}$	(D) $\frac{\pi}{d^2}$		1
3	The exact value of π is					
	(A) 3.14	(B) 3.142	(C) $\frac{22}{7}$	(D) none of these		1
4	The relationship between diameter and radius is					
	(A) $d = 2r$	(B) $r = 2d$	(C) $rd = 2$	(D) none of these		1
5	A quadrant is					
	(A) $\frac{3}{4}$ of a circle	(B) $\frac{1}{2}$ of a circle	(C) $\frac{1}{4}$ of a circle	(D) none of these		1
6	The circumference of a circle of radius 7 cm is closest to					
	(A) 44 cm	(B) 46 cm	(C) 48 cm	(D) 50 cm		1
7	The area of a circle of diameter 28 cm correct to the nearest whole number equals					
	(A) 610 cm^2	(B) 616 cm^2	(C) 622 cm^2	(D) none of these		1
8	The volume of a cylinder with a radius r and height h equals					
	(A) $\pi^2 rh$	(B) πrh^2	(C) $\pi r^2 h$	(D) πrh		1
9	The radius of a circle is 12 cm. Its diameter equals					
	(A) 6 cm	(B) 12 cm	(C) 24 cm	(D) 12π cm		1
10	The area of a circle of radius 3 cm is approximately equal to					
	(A) 27 cm^2	(B) 28 cm^2	(C) 29 cm^2	(D) none of these		1
11	A semicircle equals					
	(A) a full circle	(B) half the circle	(C) a quarter of a circle	(D) one third of a circl		1
12	A chord cuts the circle at					
	(A) 1 point	(B) 2 points	(C) 3 points	(D) no point		1

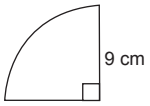
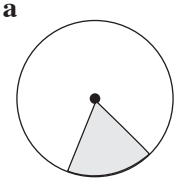
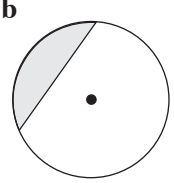
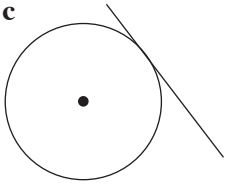
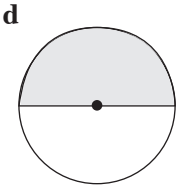
Total marks achieved for PART A 12

Circles and cylinders

Topic Test — PART B

Instructions This part consists of 12 questions
Each question is worth 1 mark
Write answers in the answers-only column

Time allowed: 20 minutes **Total marks = 12**

Questions	Answers only	Marks
1 Find the perimeter of a circle of radius equal to 21 cm, correct to two decimal places.	_____	1
2 Find the area of a circular pond with a diameter of 4 metres, correct to two decimal places.	_____	1
3 What fraction of the area of a circle is this sector? 	_____	1
4 Find the area of a circle of radius 6.34 cm, correct to two decimal places.	_____	1
5 The radius of the earth is 6400 km, find its circumference, correct to one decimal place.	_____	1
6 Find the diameter of a circle that has a circumference of 40 cm, correct to two decimal places.	_____	1
7 Calculate the perimeter of this quadrant. 	_____	1
8 If the diameter of a circle is 24 cm, what is its radius?	_____	1
9 Write the formula for the area of a circle.	_____	1
10 Write the value of π correct to two decimal places.	_____	1
11 A record has a diameter of 32 cm. What is its area to the nearest cm^2?	_____	1
12 Name the part of the circle in the following diagrams.	**a** _____	4
a  **b**  **c**  **d** 	**b** _____ **c** _____ **d** _____	

Total marks achieved for PART B 15