

Area of a circle - Worksheet

Skill

Group A - Using radius to calculate area

Work out the area of the circle. Give answers correct to 3 significant figures:

- | | | |
|--------------------------|----------------------------|----------------------------|
| 1) radius 4cm | 2) radius 4.3cm | 3) radius 4.7cm |
| 4) radius 6cm | 5) radius 6.1cm | 6) radius 6.8cm |
| 7) radius 9cm | 8) radius 9.2cm | 9) radius 9.7cm |
| 10) radius 13cm | 11) radius 13.4cm | 12) radius 13.9cm |

Group B - Using diameter to calculate Area

Work out the area of the circle. Give answers correct to 3 significant figures:

- | | | |
|----------------------------|------------------------------|------------------------------|
| 1) diameter 4cm | 2) diameter 4.6cm | 3) diameter 4.8cm |
| 4) diameter 8cm | 5) diameter 8.2cm | 6) diameter 8.5cm |
| 7) diameter 9cm | 8) diameter 9.4cm | 9) diameter 9.7cm |
| 10) diameter 15cm | 11) diameter 15.3cm | 12) diameter 15.9cm |

Group C - Giving answers in terms of π

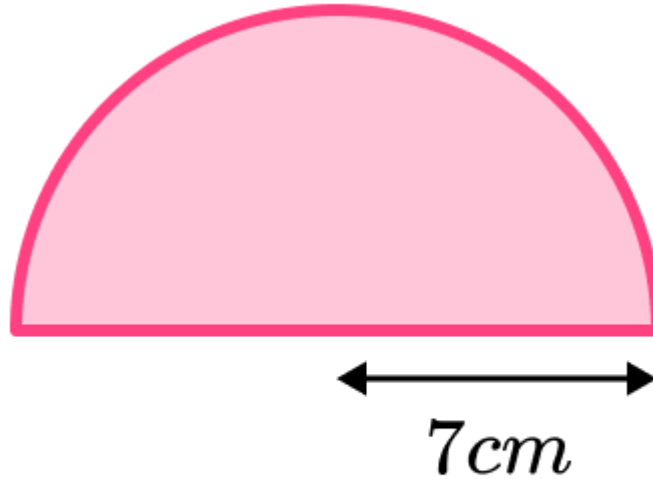
Work out the area of the circle. Leave answers in terms of π :

- | | | |
|----------------------------|----------------------------|-----------------------------|
| 1) radius 3cm | 2) radius 5cm | 3) radius 8cm |
| 4) radius 11cm | 5) radius 12cm | 6) radius 15cm |
| 7) diameter 6cm | 8) diameter 8cm | 9) diameter 12cm |
| 10) diameter 20cm | 11) diameter 40cm | 12) diameter 100cm |

Area of a circle - Worksheet

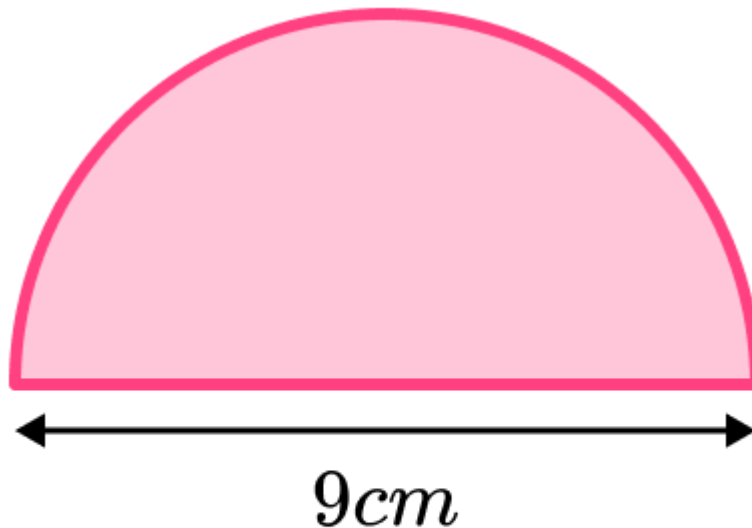
Applied

- 1) (a) Find the area of this semi-circle.



Give your answer correct to 1 decimal place.

- (b) Find the area of this semi-circle.



Give your answer correct to 1 decimal place.

- 2) (a) The area of a circle is 45 cm^2 .

Work out the radius of the circle.

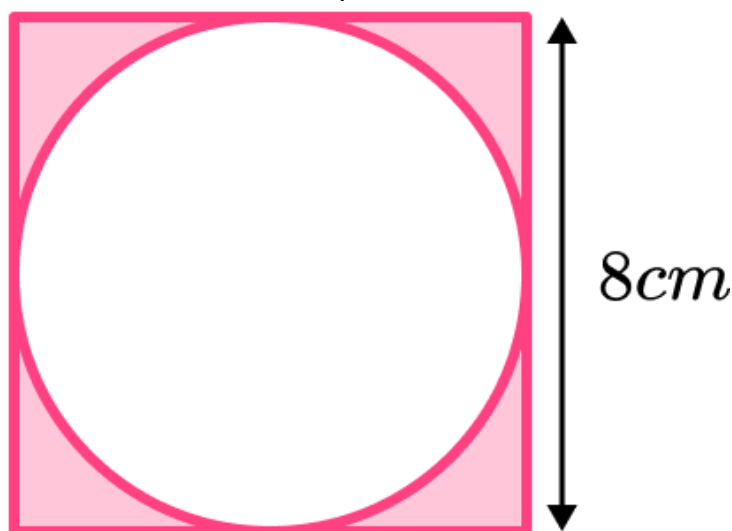
Give your answer correct to 3 significant figures.

- (b) The area of a circle is 78 cm^2 .

Work out the diameter of the circle.

Give your answer correct to 3 significant figures.

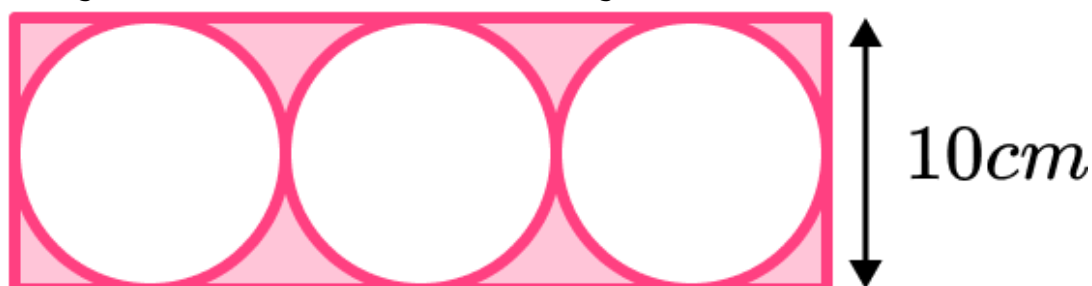
- 3) (a) The diagram shows a circle within a square.



Find the shaded area.

Give your answer correct to 3 significant figures.

- (b) The diagram shows 3 circles within a rectangle.



Find the shaded area.

Give your answer correct to 3 significant figures.

- 4) (a) A large circular lawn is sprayed with weedkiller.
Each square metre of grass requires 4 g of weedkiller.
How much weedkiller is used for a lawn of radius 35 m ?
Give your answer in kilograms, correct to 3 significant figures.

- (b) A large circular board is painted.
A tin of paint covers 5 m^2 .
How many tins of paint are required for a board with diameter 7 m ?

Area of a circle - Exam Questions

- 1)** A circle has a radius of 5cm . **A** **B** **C** **D** cm^2
- $5\pi \text{ cm}^2$ $10\pi \text{ cm}^2$ $15\pi \text{ cm}^2$ $25\pi \text{ cm}^2$ **(1 mark)**

Work out the area of the circle.

Circle the correct answer.

- 2) The radius of a circle is 4.5cm cm^2
(2 marks)

Work out the area of the circle.

Give your answer correct to 3 significant figures.

- 3) The diameter of a circle is 15cm cm^2
(3 marks)

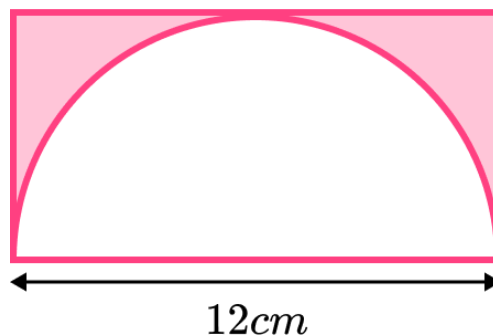
Work out the area of the circle.

Leave your answer in terms of π .

- 4) The diagram shows a semi-circle within a rectangle.
- 
-cm²
(4 marks)

Calculate the shaded area.

Give your answer correct to
3 significant figures.



- 5) The area of a circle iscm
 160cm^2 . **(3 marks)**

Calculate the radius of the circle.

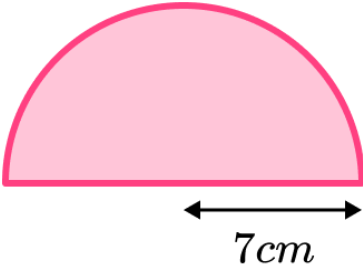
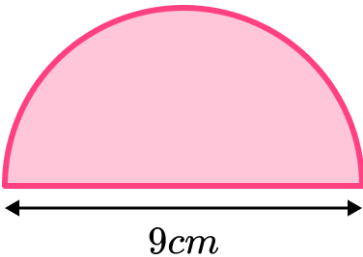
Give your answer correct to 3 significant figures.

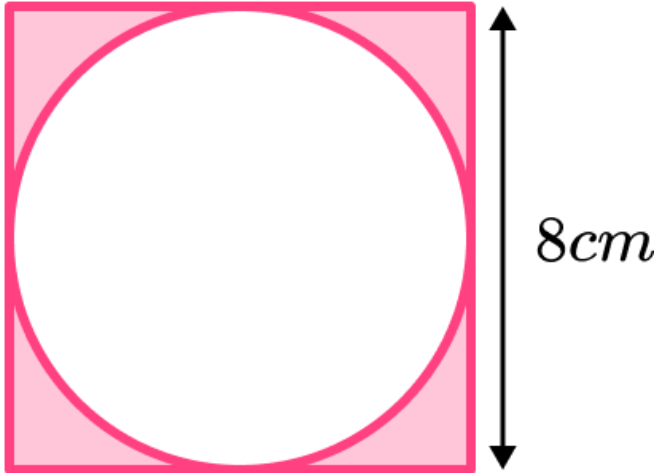
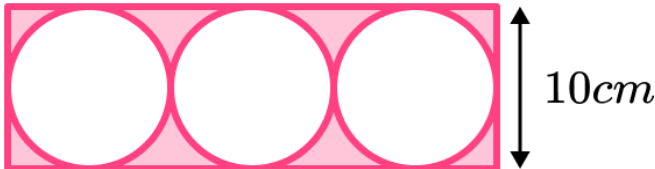
Area of a circle - Answers

	Question	Answer
	Skill Questions	
Group A	Work out the area of the circle. Give answers correct to 3 significant figures: 1) radius 4 <i>cm</i> 2) radius 4.3 <i>cm</i> 3) radius 4.7 <i>cm</i> 4) radius 6 <i>cm</i> 5) radius 6.1 <i>cm</i> 6) radius 6.8 <i>cm</i> 7) radius 9 <i>cm</i> 8) radius 9.2 <i>cm</i> 9) radius 9.7 <i>cm</i> 10) radius 13 <i>cm</i> 11) radius 13.4 <i>cm</i> 12) radius 13.9 <i>cm</i>	1) 50.3 cm^2 2) 58.1 cm^2 3) 69.4 cm^2 4) 113 cm^2 5) 117 cm^2 6) 145 cm^2 7) 254 cm^2 8) 266 cm^2 9) 296 cm^2 10) 531 cm^2 11) 564 cm^2 12) 607 cm^2
Group B	Work out the area of the circle. Give answers correct to 3 significant figures: 1) diameter 4 <i>cm</i> 2) diameter 4.6 <i>cm</i> 3) diameter 4.8 <i>cm</i> 4) diameter 8 <i>cm</i> 5) diameter 8.2 <i>cm</i> 6) diameter 8.5 <i>cm</i> 7) diameter 9 <i>cm</i> 8) diameter 9.4 <i>cm</i> 9) diameter 9.7 <i>cm</i> 10) diameter 15 <i>cm</i> 11) diameter 15.3 <i>cm</i> 12) diameter 15.9 <i>cm</i>	1) 12.6 cm^2 2) 16.6 cm^2 3) 18.1 cm^2 4) 50.3 cm^2 5) 52.8 cm^2 6) 56.7 cm^2 7) 63.6 cm^2 8) 69.4 cm^2 9) 73.9 cm^2 10) 177 cm^2 11) 184 cm^2 12) 199 cm^2

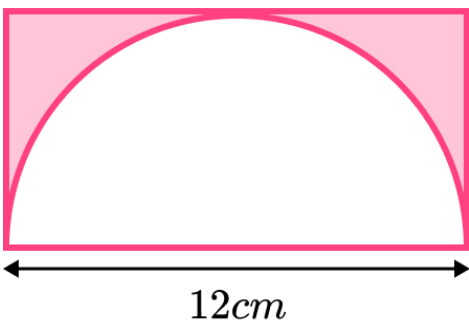
Group C	Work out the area of the circle. Leave answers in terms of π: 1) radius 3 <i>cm</i> 2) radius 5 <i>cm</i> 3) radius 8 <i>cm</i> 4) radius 11 <i>cm</i> 5) radius 12 <i>cm</i> 6) radius 15 <i>cm</i> 7) diameter 6 <i>cm</i> 8) diameter 8 <i>cm</i> 9) diameter 12 <i>cm</i> 10) diameter 20 <i>cm</i> 11) diameter 40 <i>cm</i> 12) diameter 100 <i>cm</i>	1) $9\pi \text{ cm}^2$ 2) $25\pi \text{ cm}^2$ 3) $64\pi \text{ cm}^2$ 4) $121\pi \text{ cm}^2$ 5) $144\pi \text{ cm}^2$ 6) $225\pi \text{ cm}^2$ 7) $9\pi \text{ cm}^2$ 8) $16\pi \text{ cm}^2$ 9) $36\pi \text{ cm}^2$ 10) $100\pi \text{ cm}^2$ 11) $400\pi \text{ cm}^2$ 12) $2500\pi \text{ cm}^2$
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Area of a circle - Answers

	Question	Answer
	Applied Questions	
1)	a) Find the area of this semi-circle.  Give your answer correct to 1 decimal place. b) Find the area of this semi-circle.  Give your answer correct to 1 decimal place.	a) 77.0 cm^2 b) 31.8 cm^2
2)	a) The area of a circle is 45 cm^2. Work out the radius of the circle. Give your answer correct to 3 significant figures. b) The area of a circle is 78 cm^2. Work out the diameter of the circle. Give your answer correct to 3 significant figures.	a) 3.78 cm b) 9.97 cm

3)	a) The diagram shows a circle within a square.  Find the shaded area. Give your answer correct to 3 significant figures. b) The diagram shows 3 circles within a rectangle.  Find the shaded area. Give your answer correct to 3 significant figures.	a) 13.7 cm^2 b) 64.4 cm^2
4)	a) A large circular lawn is sprayed with weedkiller. Each square metre of grass requires $4g$ of weedkiller. How much weedkiller is used for a lawn of radius $35m$? Give your answer in kilograms, correct to 3 significant figures. b) A large circular board is painted. A tin of paint covers $5m^2$. How many tins of paint are required for a board with diameter $7m$?	a) 15.4 kg b) 7.7 tins, rounds up to 8 tins.

Area of a circle - Mark Scheme

	Question	Answer	
	Exam Questions		
1)	A circle has a radius of 5 cm. Work out the area of the circle. A B C D $5\pi\text{ cm}^2$ $10\pi\text{ cm}^2$ $15\pi\text{ cm}^2$ $25\pi\text{ cm}^2$ Circle the correct answer.	D - $25\pi\text{ cm}^2$ (1)	(1)
2)	The radius of a circle is 4.5 cm. Work out the area of the circle. Give your answer correct to 3 significant figures.	$\pi \times 4.5^2$ (1) 63.6 cm^2 (1)	(2)
3)	The diameter of a circle is 15 cm. Work out the area of the circle. Leave your answer in terms of π.	Radius is 7.5 cm (1) $\pi \times 7.5^2$ (1) $\frac{225}{4}\pi$ or 56.25π (1)	(3)
4)	The diagram shows a semi-circle within a rectangle.  12 cm Calculate the shaded area. Give your answer correct to 3 significant figures.	Radius is 6 cm (1) $\pi \times 6^2 \div 2 = 18\pi$ (1) $12 \times 6 - "18\pi"$ (1) 15.5 cm^2 (1)	(4)

5)	The area of a circle is 160 cm^2. Calculate the radius of the circle. Give your answer correct to 3 significant figures.	$\pi r^2 = 160$ $r^2 = 50.929... \text{ (1)}$ $r = \sqrt{50.929...} = 7.136... \text{ (1)}$ 7.14 cm	(3)
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