Name:

Exam Style Questions

Area of a Circle

Corbettmaths

Ensure you have: Pencil, pen, ruler, protractor, pair of compasses and eraser

You may use tracing paper if needed

Guidance

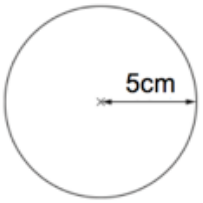
1. Read each question carefully before you begin answering it.
2. Don't spend too long on one question.
3. Attempt every question.
4. Check your answers seem right.
5. Always show your workings

Revision for this topic

www.corbettmaths.com/contents

Videos 40 and 59

1. Shown is a circle with radius 5cm.



Work out the area of the circle.

State the units for your answer.
Give your answer to 2 decimal place.

$\pi \times 5^2 = 78.53981634..\text{cm}^2$

78.54cm²

(3)

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2. A circle has radius 3cm.

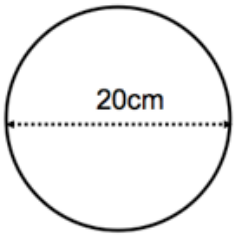
Work out the area of the circle.
Give your answer in terms of π

$\pi \times 3^2$
$= \pi \times 9$
$= 9\pi$

9π cm²

(2)

3. A circle has a diameter of 20cm.



Work out the area of the circle.
Use π = 3.14

$\pi \times 10^2$

$3.14 \times 100 = 314$

314 ..... cm²

(2)

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4. A circular fishpond has radius 2.5m

Calculate the area of the fishpond.
Include units for your answer.

$\pi \times 2.5^2$

$\pi \times 6.25 = 19.634...$

$19.635_m{}^2$ .....

(3)

5. A mobile phone mast has a range of 3km.

Calculate the area of the shaded region.
Give your answer to 2 decimal places.

$\pi \times 3^2$

28.27 km²

(2)

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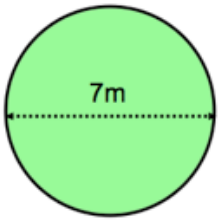
6. A circular flower bed has diameter 7 metres.



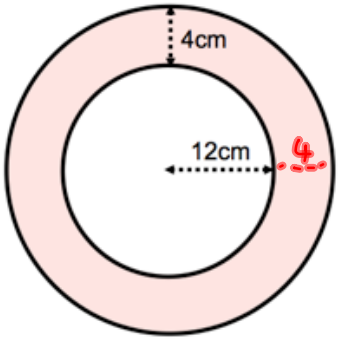
Work out the area of the flower bed.
Give your answer correct to 1 decimal place.

$\pi \times 3.5^2$

38.5 m²

(2)

7. Shown below is a circular photo surrounded by a frame.



The photo has radius 12cm.
The frame has width 4cm.

Work out area of the frame.
This area is shaded in the diagram.

$\pi \times 12^2 = 452.389\ldots$

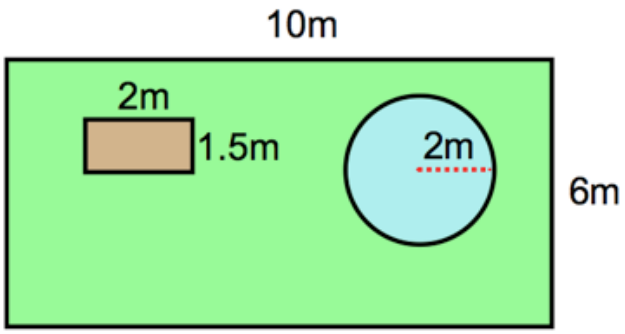
$\pi \times 16^2 = 804.2477\ldots$

$804.24\ldots - 452.389\ldots = 351.858\ldots$

351.86 .....cm²

(3)

8. Shown below is a rectangular garden.



Belle wants to re-seed the grass in her garden.

The garden is 10 metres long and 6 metres wide.
There is a vegetable patch that is 2 metres long and 1.5 metres long.
There is a circular pond that has radius 2 metres.
The remainder of the garden is grass.

Each bag of grass seed costs £4.60 and covers 10m².

Work out the total cost to re-seed the garden.

$6 \times 10 = 60 m^2$

$2 \times 1.5 = 3 m^2$

$\pi \times 2^2 = 12.566... m^2$

$60 - 3 - 12.566... = 44.433...$

$44.43... \div 10 = 4.43...$

5 bags

$5 \times 4.60 = £23$

£ 23

(6)

9. A circle has an area of 200cm²

Work out the radius of the circle.

$\pi \times r^2 = 200$

$r^2 = 63.6619...$

$r = \sqrt{63.66...}$

$r = 7.978...$

7.98 .....cm

(2)

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10. A circle has an area of 64π cm²

Work out the radius of the circle.

$\pi r^2 = 64\pi$

$r^2 = 64$

$r = 8$

8 .....cm

(2)

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11. A circle has a circumference of 40cm.

Work out the area of the circle.

$C = \pi \times d$

$40 = \pi \times d$

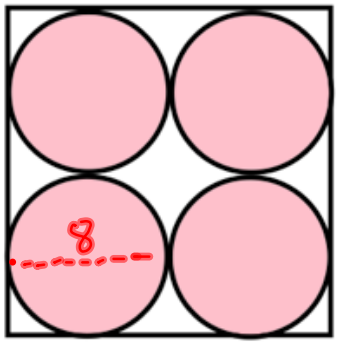
$d = 40 \div \pi = 12.732...$

$r = 12.732... \div 2 = 6.36619...$

$\pi \times 6.36619...^2 =$ 1273 .....cm²

(3)

12. A logo is designed that has four pink circles within a white square.



16cm

The square has side length 16cm.

Find the area of the logo that is white.

$\pi \times 4^2 = 50.265...$

$50.265... \times 4 = 64\pi = 201.0619...$

$16 \times 16 = 256$

$256 - 64\pi = 54.938...$

54.94 ..... cm^2

(5)