

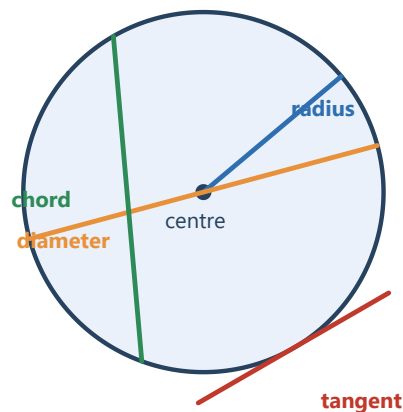
GCSE Maths: Circles: vocabulary and circumference (Higher): answers

GCSE Maths - Perimeter, Area and Circles - Higher - Lesson 18.6

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch18-perimeter-area-circles/higher/circles-vocabulary-and-circumference/

Exercise 18F Circles: vocabulary and circumference Calculator allowed

- 1 Choose the correct word from: radius, diameter, chord, tangent, circumference, arc. Each description is about a circle.



- (a) the distance all the way round the circle

Answer: circumference

- (b) a straight line from the centre to the edge

Answer: radius

- (c) a straight line across the circle through the centre

Answer: diameter

- (d) a straight line joining two points on the circle that does not have to go through the centre

Answer: chord

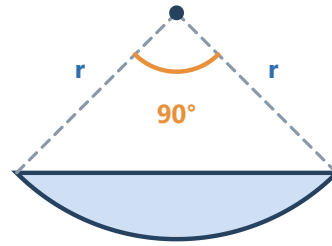
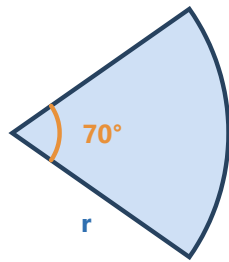
- (e) a straight line that touches the circle at one point only

Answer: tangent

- (f) part of the circumference

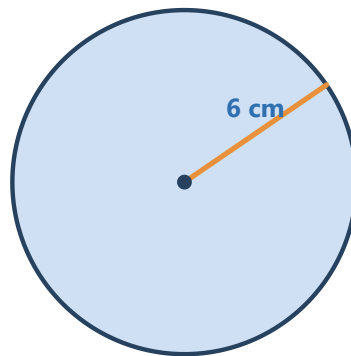
Answer: arc

- 2 The diagram shows a sector and a segment of a circle (in each, the shaded part is named). Which picture shows a sector? Which shows a segment? Give a reason for each.



Answer: Left: sector. Right: segment.

- 3 Write down (a) the diameter of a circle with radius 6 cm, (b) the radius of a circle with diameter 15 cm.



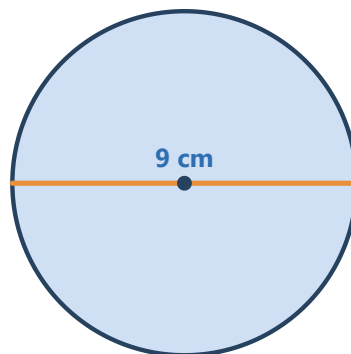
- (a) diameter

Answer: 12 cm

- (b) radius

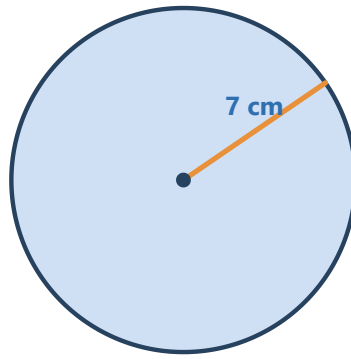
Answer: 7.5 cm

- 4 Work out the circumference of the circle. Give your answer to 1 decimal place.



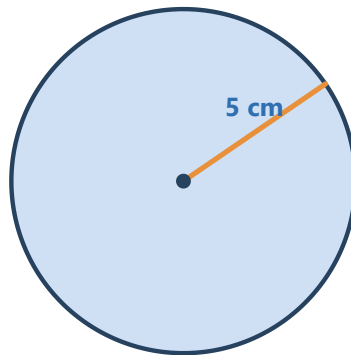
Answer: 28.3 cm

- 5 Work out the circumference of the circle. Give your answer to 1 decimal place.



Answer: 44.0 cm

- 6 Work out the circumference of the circle. Give your answer (a) in terms of π and (b) to 1 decimal place.



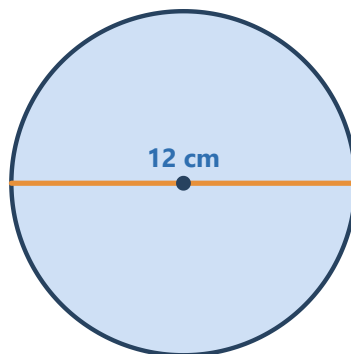
- (a) in terms of π

Answer: 10π cm

- (b) 1 d.p.

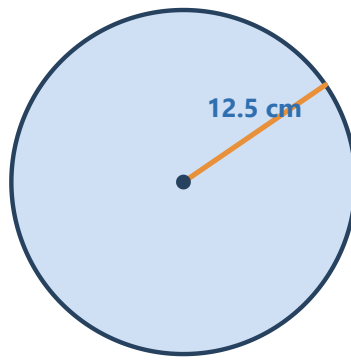
Answer: 31.4 cm

- 7 Work out the circumference of the circle. Give your answer in terms of π .



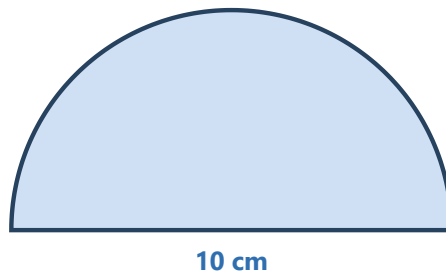
Answer: 12π cm

- 8 Work out the circumference of a circle with radius 12.5 cm. Give your answer to 3 significant figures.



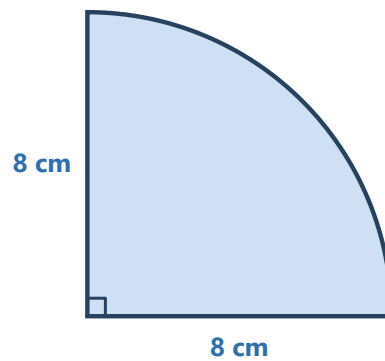
Answer: 78.5 cm

- 9 Work out the perimeter of the semicircle. Give your answer to 1 decimal place.



Answer: 25.7 cm

- 10 The shape is a quarter of a circle. Work out its perimeter (a) in terms of π and (b) to 1 decimal place.



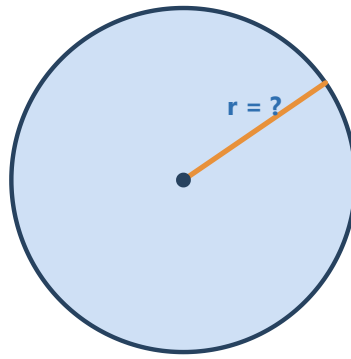
- (a) in terms of π

Answer: $(16 + 4\pi)$ cm

- (b) 1 d.p.

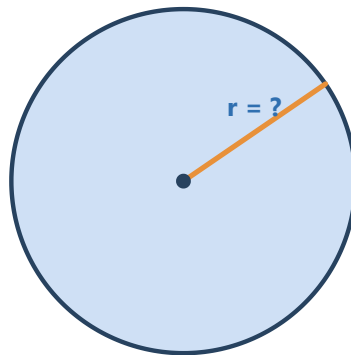
Answer: 28.6 cm

- 11 The circumference of a circle is 26π cm. Work out its radius.



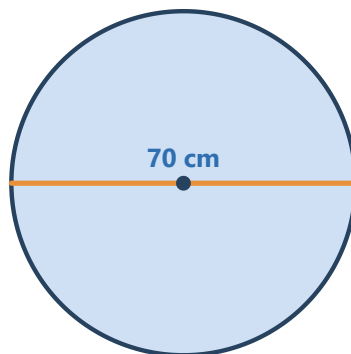
Answer: 13 cm

- 12** The circumference of a circle is 50 cm. Work out the radius. Give your answer to 2 decimal places.



Answer: 7.96 cm

- 13** A bicycle wheel has a diameter of 70 cm. (a) Work out the circumference of the wheel to 3 significant figures. (b) How many complete turns must the wheel make to travel at least 1 km?



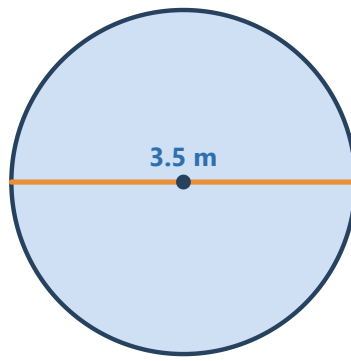
- (a) circumference

Answer: 220 cm

- (b) turns for 1 km

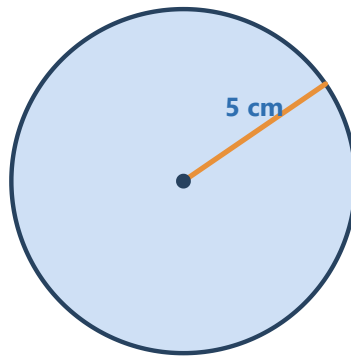
Answer: 455 turns

- 14** A circular pond has diameter 3.5 m. A fence goes all the way round it. Fencing costs £9 per metre. Work out the cost of the fence, to the nearest penny.



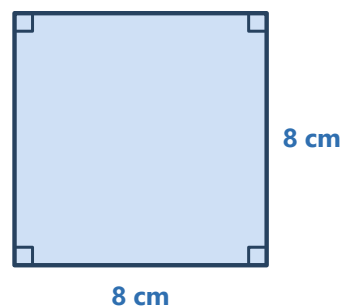
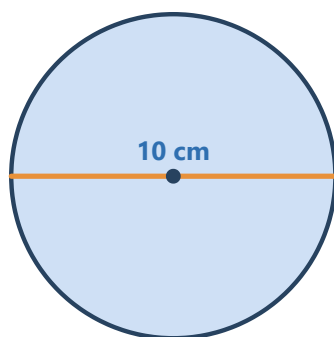
Answer: £98.96

- 15** Sam says: "A circle with radius 5 cm has circumference 5π cm." Explain his mistake and give the correct circumference in terms of π .



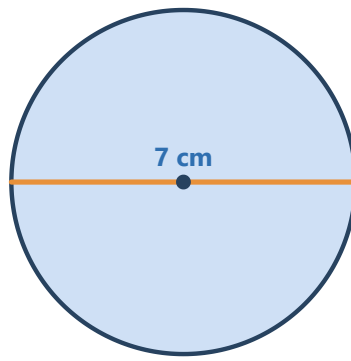
Answer: He used πr ; the correct answer is 10π cm

- 16** A circle has diameter 10 cm. A square has sides of 8 cm. Which has the bigger perimeter (circumference)? Show your working.



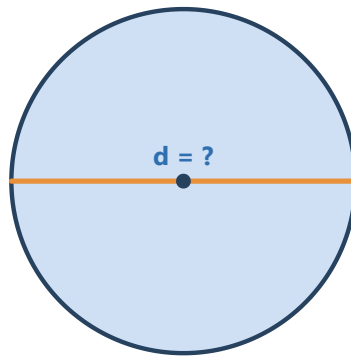
Answer: The square (32 cm compared with 31.4 cm)

- 17** Anna ties string round the middle of a tin. The tin has diameter 7 cm and the string is 22 cm long. Work out the circumference $\div$ diameter. What does the answer show?



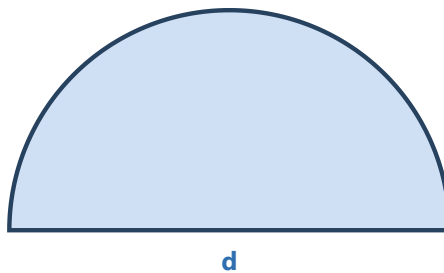
Answer: $22 \div 7 = 3.14\dots$ (about π)

- 18** A wheel of diameter d rolls 1000 m in exactly 250 turns. Work out the diameter of the wheel, in metres to 2 decimal places.



Answer: 1.27 m

- 19** A semicircle has diameter d . Show that its perimeter is $d(\pi + 2) \div 2$.



Answer: Perimeter = $d(\pi + 2) \div 2$