Name: _____

ASM Tuition Academy

CIRCLES AREA AND CIRCUMFERENCE

Instructions:

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
  - there may be more space than you need.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all you're working out.**

Information:

- The marks for each question are shown in brackets
  - use this as a guide as to how much time to spend on each question.

Advice:

- Read each question carefully before you start to answer it.
- Keep an eye on time.
- Try to answer every question.
- Check your answers if you have time at the end.

Q1.

(a) On a circle, draw a diameter of the circle.

(b) On a circle, draw a segment of the circle.

Shade the segment.

(Total for question 1 is 2 marks)

Q2.

(a) Write down the mathematical name for the straight line shown in the diagram.

(b) Write down the mathematical name for the straight line touching the circle.

(Total for question 2 is 2 marks)

Q3.

A circle has a radius of 5 cm.
Work out the circumference of the circle.
Give your answer correct to 2 decimal places.

(Total for question 3 is 3 marks)

Q4.

A circle has a diameter of 8 m.
Work out the area of the circle.
Give your answer correct to 1 decimal place.

(Total for question 4 is 3 marks)

Q5.

A circle has a diameter of 10 mm.
Work out the circumference of the circle.
Give your answer in terms of π.

(Total for question 5 is 3 marks)

Q6. A circle has a radius of 6 cm.
Work out the area of the circle.
Give your answer in terms of π.

(Total for question 6 is 3 marks)

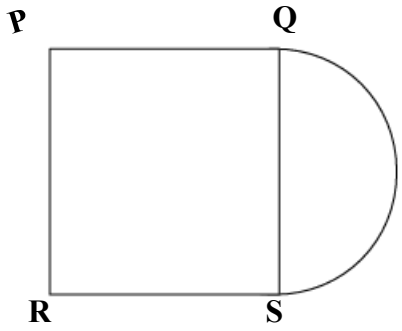
Q7. A semi-circle has an area of 32 m^2.
Find the perimeter of the semi-circle.
Give your answer correct to 1 decimal place.

(Total for question 7 is 3 marks)

Q8. A circular field has a diameter of 20 metres.
A farmer wants to build a fence around the edge of the field.
Each metre of fence will cost £12.50.
Work out the total cost of the fence.

(Total for question 8 is 3 marks)

Q9. An area is formed by a square, PQRS, and a semi-circle.PR is the diameter of the semi-circle.The radius of the semi-circle is 3 m.The area is going to be covered completely with lawn seed.A box of lawn seed covers 20 m².
How many boxes of lawn seed will be needed?
You must show your working.



(Total for question 9 is 5 marks)

Q10. The diagram shows a shaded ring formed by cutting a smaller circle out of a larger circle.
The radius of the smaller circle is 4 cm.
The diameter of the larger circle is 14 cm.
Find the area of the shaded ring.

(Total for question 10 is 3 marks)

Q11. The diagram shows three quarters of a circle with a radius of 8 metres.
Find the perimeter of the shape.

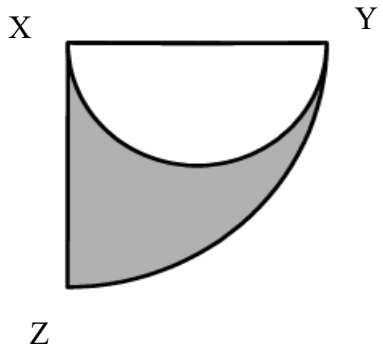
(Total for question 11 is 3 marks)

Q12. The diagram shows a semi-circle inside a sector of a circle, XYZ.
XY is the diameter of the semi-circle.

$$\angle XYZ = 90°$$

XY = 10 cm

Find the area of the shaded region.

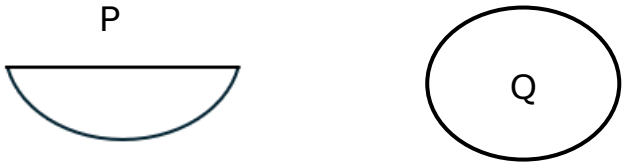


(Total for question 12 is 3 marks)

Q13. A circle is enclosed by a square as shown in the diagram.
Each side of the square measures 10 cm.
Find the area of the shaded region.
Give your answer correct to 1 decimal place.

(Total for question 13 is 3 marks)

Q14.



Shape P is a semi-circle which has a radius of 15 cm.
Shape Q is a circle.
The area of shape P is 4.5 times the area of shape Q.
Show that the radius of shape Q is 5 cm.

(Total for question 14 is 3 marks)
