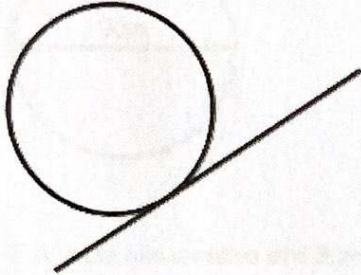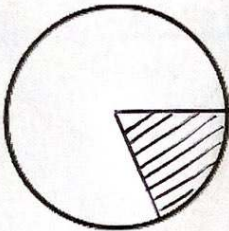# QT Circles

1. Write the mathematical name for the straight line touching the circle, as shown.
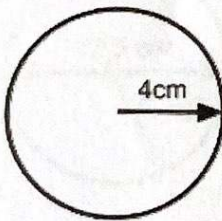
TANGENT .

2. On the diagram below, draw a sector of the circle. Shade the sector.
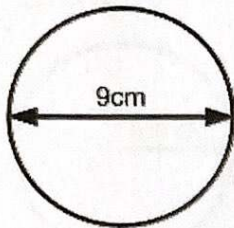
3. A circle has a radius of 4cm. Work out the circumference of the circle, giving your answer correct to 2 decimal places.

4cm

$$\text{Circumference} = \pi D$$
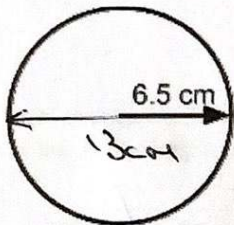$$= \pi \times 8$$
$$= 25.13274 \text{ cm}$$
$$= 25.13 \text{ cm}$$

4. A circle has a diameter of 9cm. Calculate the circumference of the circle, giving your answer correct to 1 decimal place.

9cm

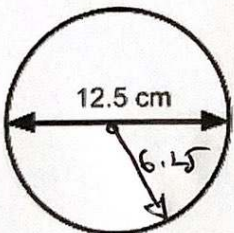$$Circumference = \pi D$$
$$= \pi \times 9$$
$$= 28.27433$$
$$= 28.3 \, cm$$

5. A circle has a radius of 6.5cm. Calculate the circumference of the circle, giving your answer correct to 1 decimal place.

6.5 cm
13cm

$$Circumference = \pi D \qquad (2\pi r)$$
$$= \pi \times 13$$
$$= 40.8407$$
$$= 40.8 \, cm$$
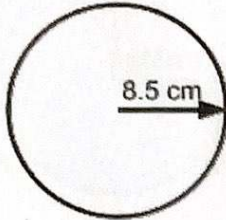
6. A circle has a diameter of 12.5cm. Calculate the area of the circle, giving your answer correct to 2 decimal places.

12.5 cm
6.25
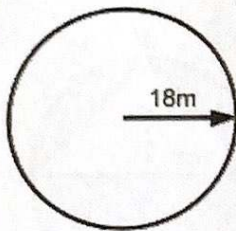
$$Area = \pi r^2$$
$$= \pi (6.25)^2$$
$$= 122.718463$$
$$= 122.72 \, cm^2$$

7. A circle has a radius of 8.5cm. Calculate the area of the circle, giving your answer in terms of π.

$$\text{Area} = \pi r^2$$
$$= \pi (8.5)^2$$
$$= 72.25\pi$$

8. A circular field has a radius of 18 metres. A farmer wants to build a fence around the edge of the field. Each metre of fence will cost £22.75. Calculate the total cost of the fence.
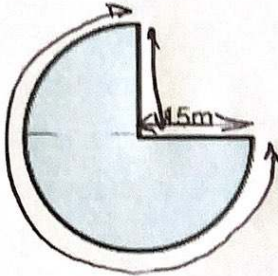
$$\text{Circumference} = \pi D$$
$$= \pi \times 36$$
$$= 113.097 m$$

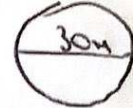The farmer needs 114 m

So 114×22.75
$$= £2593.50$$

9. The diagram shows three quarters of a circle with a radius of 15m. Find the perimeter of the shape. Give your answer correct to 1 decimal place.
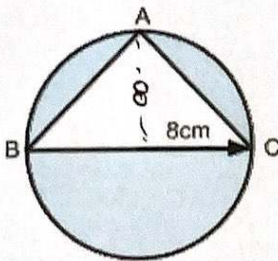
circumference $= \pi D$ $(2\pi r)$

$= \pi \times 30$

$= 30\pi$

Only $\frac{3}{4}$ $= 30\pi \times \frac{3}{4} = 22.5\pi$

$= 70.6855 cm$

Don't forget add 30cm

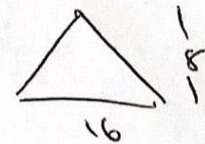$= 100.6855 cm$

$= 100.7 cm$.

10. The diagram shows a circle with a radius of 8cm, and a triangle ABC. AB = AC. Find the area of the shaded region. Give your answer correct to 2 decimal places.

Area of circle $= \pi r^2$

$= \pi (8)^2$

$= 64\pi$

Area of triangle $= \frac{b \times h}{2}$

$= \frac{16 \times 8}{2} = 64$

Area of shaded $=$ circle $-$ triangle

$= 64\pi - 64$

$= 201.0619 - 64$

$= 137.06 cm^2$