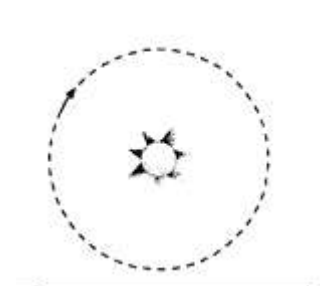1) A local council recycles 42 000 tonnes of waste a year.
The council aims to increase the amount of waste recycled by 8% each year.
How much waste does it expect to recycle in 3 years time?
Give your answer **to three significant figures.**

2) The orbit of a planet around a star is circular.

The radius of the orbit is 4.96×10^7 kilometres.
Calculate the circumference of the orbit.
Give your answer in scientific notation.
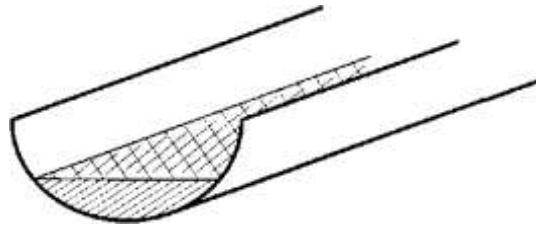
3) Simplify, leaving your answer as a surd

$$2\sqrt{20} - 3\sqrt{5}$$

4) Solve the equation: $2x^2 + 3x - 7 = 0$

giving your answer to **1 decimal place.**
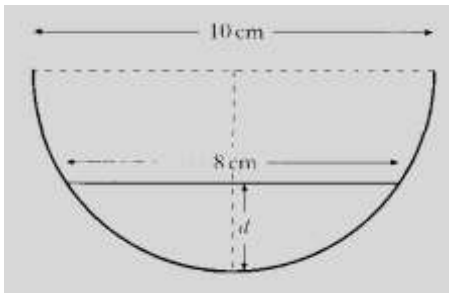
5) Solve the inequality $5 - x > 2(x + 1)$

6) Euan plays in a snooker tournament which consists of 20 games.
He wins x games and loses y games.
(a) Write down an equation in x and y to show this information.
(b) He is paid £5 for each game he wins and £2 for each game he loses.
He is paid a total of £79.
Write down an equation in x and y to show **this** information.
(c) How many games did Euan **win?**

7) The diagram shows water lying in a length of roof guttering.

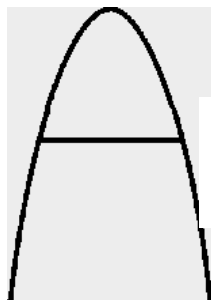

The cross-section of the guttering is a semi-circle with diameter 10 centimetres.
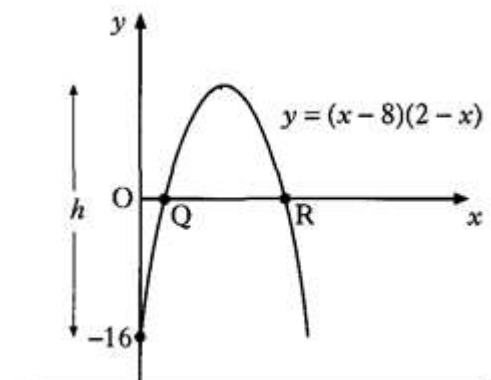The water surface is 8 centimetres wide.

Calculate the depth, d, of water in the guttering.

8) The curved part of the letter A in the Artwork logo is in the shape of a parabola.
The equation of this parabola is y = (x -8)(2 - x).

RTWORK

a) Write down the coordinates of Q and R.

b) Calculate the height, h, of the letter.