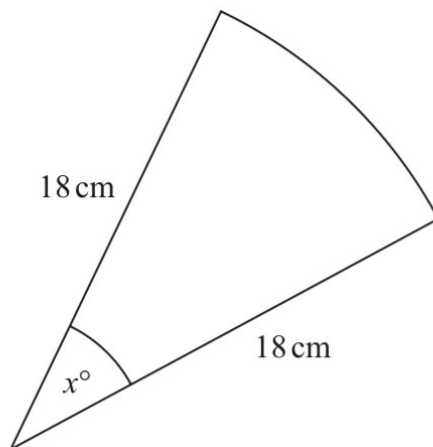


**Question 1 (3 Marks)**

The diagram shows a sector of a circle of radius 18 cm.



The length of the arc is  $4\pi$  cm.

Work out the value of  $x$ .

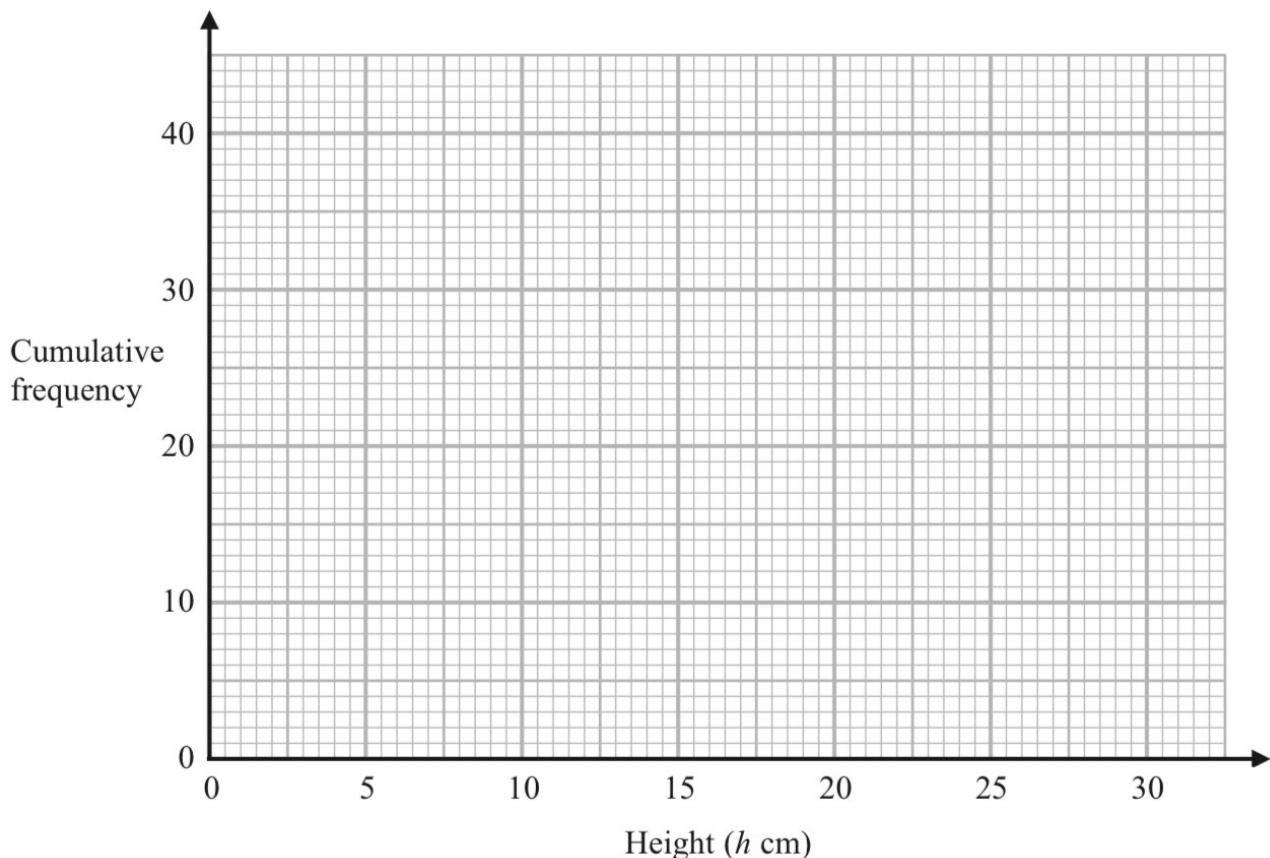
$x = \dots\dots\dots$

**Question 2 (3 Marks)**

The cumulative frequency table gives information about the heights, in cm, of 40 plants.

Height ( $h$ cm)	Cumulative Frequency
$0 < h \leq 5$	4
$0 < h \leq 10$	11
$0 < h \leq 15$	24
$0 < h \leq 20$	34
$0 < h \leq 25$	38
$0 < h \leq 30$	40

(a) On the grid, draw a cumulative frequency graph for this information.



(2)

(b) Use the graph to find an estimate for the median height of the plants.

..... cm

(1)

**Question 3 (4 Marks)**

A factory makes 450 pies every day.  
The pies are chicken pies or steak pies.

Each day Milo takes a sample of 15 pies to check.

The proportion of the pies in his sample that are chicken is the same as the proportion of the pies made that day that are chicken.

On Monday Milo calculated that he needed exactly 4 chicken pies in his sample.

(a) Work out the total number of chicken pies that were made on Monday.

.....  
(2)

On Tuesday, the number of steak pies Milo needs in his sample is 6 correct to the nearest whole number.

Milo takes at random a pie from the 450 pies made on Tuesday.

(b) Work out the lower bound of the probability that the pie is a steak pie.

.....  
(2)

**Question 4 (3 Marks)**

(a) Simplify  $\frac{x-1}{5(x-1)^2}$

.....  
(1)

(b) Factorise fully  $50 - 2y^2$

.....  
(2)

**Question 5 (2 Marks)**

Find the exact value of  $\tan 30^\circ \times \sin 60^\circ$   
Give your answer in its simplest form.