The table below shows the number of children in a class, sorted according to their heights.

Height (cm)	Number of children
130 - 140	7
140 - 150	9
150 - 160	10
160 - 170	10
170 - 180	9

If the students are directed to stand in a line according to the order of their heights starting from the smallest, then

(a) The height of the child at what position is taken as the median?

(b) What is the assumed height of the child in the 17th position?

(c) Find the median height. (5)

Height (cm)	Number of children
Less than 140	7
Less than 150	16
Less th an 160	26
Less than 170	36
Less than 180	45

$$\frac{45+1}{2} = \frac{46}{2} = 23$$

(a) The height of the 23rd child is taken as the median height.

(b) The height of the 23rd child is between 150 and 160.

Height between 150 and 160 = 10 cm

Number of children between these heights = 10

Dividing this 10 cm equally among 10, each part is $\frac{10}{10} = 1$ cm

The height of the 17th child is in the middle of 150 and 151.

Height of the 17th child = (150 + 151) ÷ 2

= 150.5 cm

(c) 23rd term of an arithmetic sequence whose 17th term is 150.5 and common difference is 1

= 17th term + 6 common difference

= 150.5 + 6 × 1

= 150.5 + 6 = 156.5

Mean height = 156.5 cm