8. The marks obtained by ~~the~~ 65 students in Statistics are shown in the table given below. calculate median.

Marks	No. of. students
More than 70%	7
More than 60%	18
More than 50%	40
More than 40%	46
More than 30%	63
More than 20%	65

Solution the given frequency is actuall c.f.

marks	f	c.f
70–80	7	7
60–70	11	18
50–60	22	40
40–50	6	46
30–40	17	63
20–30	2	65
	N = 65	

$\therefore m = \left(\frac{N}{2}\right)^{th}$ item

$= \left(\frac{65}{2}\right)^{th}$ item

$= 32.5$

32.5 lies in c.f 40, so median class 50 – 60

$\therefore l_2 = 60$

$f = 22$

$\frac{N}{2} = 32.5$

$c = 18$

$i = 10$

Now, as interval is in decreasing order so,

$$m = l_2 - \frac{\left(\frac{N}{2} - c\right)}{f} \times i$$

$$= 60 - \frac{(32.5 - 18)}{22} \times 10$$

$$= 60 - \frac{145}{22}$$

$$= 60 - 6.5$$

$$= 53.5 \text{ Ans.}$$