

# High School Assignment

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## 1 2018-ICSE-10th board-Problem : 8(b)

**Problem** : If the mean of the following distribution is 24, find the value of 'a'.

Marks	0-10	10-20	20-30	30-40	40-50
Number of students	7	a	8	10	5

**Solution** : Given, the mean of the following distribution is,  $m = 24$ .  
We know that,

$$\text{mean}(m) = \frac{\sum f_i x_i}{\sum f_i} \quad (1)$$

As per the question,

Table 1: Given data

Intervals	Frequency ( $f_i$ )	Mid-Value ( $x_i$ )	$f_i x_i$
0-10	7	5	35
10-20	a	15	15a
20-30	8	25	200
30-40	10	35	350
40-50	5	45	225
$\sum f_i = 30 + a$			$\sum f_i x_i = 810 + 15a$

Therefore, from equation 1, the value of  $\text{mean}(m = 24)$  can be written as,

$$\begin{aligned} 24 &= \frac{810 + 15a}{30 + a} \\ 24(30 + a) &= 810 + 15a \\ 720 + 24a &= 810 + 15a \\ 9a &= 90 \\ a &= 10 \end{aligned}$$

Therefore, the required value(a) is 10.