

High School Assignment

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$$a = 10$$

board-Problem : 8(b) Therefore, the required value(a) is 10.

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,

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

As per the question,

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 mean($m = 24$) can be written as,

$$24 = \frac{810 + 15a}{30 + a}$$

$$24(30 + a) = 810 + 15a$$

$$720 + 24a = 810 + 15a$$

$$9a = 90$$