

6) $\vec{u}(2,3)$ & $\vec{v}(a-2, a+1)$ are collinear if.

$$\frac{x_{\vec{u}}}{x_{\vec{v}}} = \frac{y_{\vec{u}}}{y_{\vec{v}}} \quad \left| \begin{array}{l} 3(a-2) = 2(a+1) \\ 3a-6 = 2a+2 \end{array} \right.$$

So $\frac{a-2}{2} = \frac{a+1}{3}$ Thus, $a = 8$

False.

2nd exercises Part - A: is the set of

1) Population: Members of certain families.

The variable: Type of work.

Nature of variable: qualitative, since it's not numerical.

2a) The specified terms represent different modalities of the given variable

b). The given no.s on vertical axis represent the different percentages of members for each type of work.

3) Frequencies & % frequencies are

proportional so;

$$\frac{\text{no. of educators}}{\% \text{ of educators}} = \frac{\text{Total}}{100\%}$$

$$\frac{200}{20\%} = \frac{\text{Total}}{100}$$

Thus, Total = 1000 member

2nd way:

$$\% \text{ R. f of educators} = \frac{\text{no. of edu.}}{\text{Total}} \times 100$$

$$\text{So Total} = \frac{\text{no. of edu.} \times 100}{\% \text{ of edu.}}$$

$$= \frac{200 \times 100}{20} = 1000 \text{ members}$$

4) No, average value of such data can't be computed since the variable is qualitative.

part-B:

Monthly income (xi)	1000	1500	3000	5000	10000	Total
no. of educators (ni)	70	90	20	10	10	200
% I.C.F	$\frac{70}{200} \times 100$ 35%	$\frac{160}{200} \times 100$ 80%	$\frac{180}{200} \times 100$ 90%	$\frac{190}{200} \times 100$ 95%	$\frac{200}{200} \times 100$ 100%	—

2) a) % of educators that has at least 3000\$ income = $\frac{20+10+10}{200} \times 100 = 20\%$

Thus, False.

b) If all educator are to have same monthly in come it would be

$$= \frac{\sum_{i=1}^n x_i n_i}{N} = \frac{1000(70) + 1500(90) + 3000(20) + 5000(10) + 10000(10)}{200}$$