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Class - 11th

Sub - Math

Q17

x_i	y_i	x_i^2	y_i^2	$x_i y_i$
8	2	64	4	16
12	3	144	9	36
16	4	256	16	64
20	5	400	25	100
24	6	576	36	144
80	20	1440	90	360

$$\sum x_i = 80 \quad \sum y_i = 20$$

$$\sum x_i^2 = 1440 \quad \sum y_i^2 = 90 \quad \sum x_i y_i = 360$$

$$\bar{x} = \frac{\sum x_i}{n} = \frac{80}{5} = 16$$

$$\bar{y} = \frac{\sum y_i}{n} = \frac{20}{5} = 4$$

$$\begin{aligned} \text{cov}(x, y) &= \frac{\sum x_i y_i}{n} \\ &= \frac{360}{5} = 72 \end{aligned}$$

$$\sqrt{x} = \sqrt{\frac{\sum dx^2}{n}} = \frac{\sqrt{160}}{5} = \sqrt{32}$$

$$\sqrt{y} = \frac{\sqrt{\sum dy^2}}{\sqrt{n}} = \frac{\sqrt{10}}{5} = \sqrt{2}$$

$$r = \frac{\cos(x \cdot y)}{\sum x \cdot y} = \frac{8}{\sqrt{32} \cdot \sqrt{2}}$$

$$= \frac{64}{32 \cdot 2}$$

$$\therefore = 1$$

Q27

x	y	dx	dy	dx ²	dy ²	dx · dy
6	9	0	1	0	1	0
2	11	4	3	16	9	-12
10	1e+a=5	4	-3	16	9	-12
4	8	-2	0	4	0	0
8	7	2	-1	4	1	-2
<u>30</u>	<u>35</u>	<u>0</u>	<u>0</u>	<u>40</u>	<u>20</u>	<u>-26</u>

$$\bar{x} = 6 \quad \bar{y} = 8$$

$$\sum y = 35 + 9$$

$$\bar{y} = \frac{\sum y}{n}$$

$$8 = \frac{35 + 9}{5}$$

$$40 = 35 + 9$$

$$9 = 5$$

$$\bar{x} = \frac{(0.1)(x \cdot y)}{(0x)(0y)} = \frac{-5 \cdot 2}{2\sqrt{2} \times 2}$$

$$= \frac{-1.3}{2\sqrt{2}}$$

$$= \frac{-1.3}{1.4}$$

$$= \frac{-13}{14}$$

$$= 0.928$$

Q.37

$$(0.1)(x \cdot y) = \frac{\sum dx \cdot dy}{n} = \frac{12}{n}$$

$$0x = \frac{\sum x dx^2}{n} = \frac{\sqrt{40}}{n}$$

$$\bar{x} = \frac{(0.1)(x \cdot y)}{(0x)(0y)}$$

$$0.15 = \frac{12}{n}$$

$$4\sqrt{40} \mid n$$

$$0.6 = \frac{12}{n} \times \frac{\sqrt{n}}{\sqrt{40}}$$

$$\sqrt{n} = \frac{12}{0.6 \times \sqrt{40}}$$

$$\sqrt{n} = \frac{120}{6\sqrt{40}} = \frac{20}{\sqrt{40}}$$

$$n = \frac{400}{40} = 10$$