



①



1-

(b) 1.53 

2-

x	y	Rank of x	Rank of y	D	D ²	
60	80	6	4.5	1.5	2.25	
50	90	5	6	-1	1	
10	50	1	1	0	0	
20	60	2	2	0	0	
30	70	3	3	0	0	
40	80	4	4.5	-0.5	0.25	
					3.5	

$$r = 1 - \frac{6 \sum D^2}{n(n^2 - 1)} = 1 - \frac{6 \times 3.5}{6(36 - 1)} = 0.9$$

(Direct Corr.)  

3-

The mean = $\mu = 2$

The variance σ^2

$$= \sum X_r^2 \cdot f(x_r) - \mu^2$$

$$= \frac{31}{6} - (2)^2 = \frac{7}{6}$$

X_r	$f(x_r)$	$X_r \cdot f(x_r)$	$X_r^2 \cdot f(x_r)$
0	$\frac{1}{6}$	0	0
1	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$
2	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{4}{3}$
3	$\frac{5}{12}$	$\frac{15}{12}$	$\frac{45}{12}$
		2	$\frac{31}{6}$



The standard deviation = $\sigma = \sqrt{\sigma^2}$

$$\sigma = \sqrt{\frac{7}{6}} = \frac{\sqrt{42}}{6} \approx 1.08$$

(تراجعى الحلول الأخرى)

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4-

$$(b) \frac{1}{2} \quad \triangle$$

5-

$$(d) 0.0668 \quad \triangle$$

6-

$$r = \frac{n \sum xy - \sum x \sum y}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}} \quad \triangle$$

$$r = \frac{6 \times 56 - 6 \times 21}{\sqrt{[6 \times 76 - (6)^2][6 \times 91 - (21)^2]}} \quad \triangle$$

$$r = \frac{210}{210} = 1 \quad \triangle$$

(Direct Perfect Corr.)

$$\hat{y} = a + bx$$

$$b = \frac{n \sum xy - \sum x \sum y}{n \sum x^2 - (\sum x)^2} \quad \triangle \frac{1}{2}$$

$$b = \frac{5 \times 56 - 6 \times 21}{6 \times 76 - (6)^2} = \frac{1}{2} \quad \triangle \frac{1}{2}$$

$$a = \frac{\sum y}{n} - b \frac{\sum x}{n} = \frac{21}{6} - \frac{1}{2} \times 6 = 3 \quad \triangle \frac{1}{2}$$

∴ The regression line equation:

$$\hat{y} = 3 + \frac{1}{2} X \quad \triangle$$

(تراجعى الحلول الأخرى)

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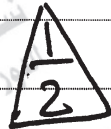
(d) 1



8-

(i) A: the sum of the two numbers is prime

$$P(A) = \frac{11}{25}$$

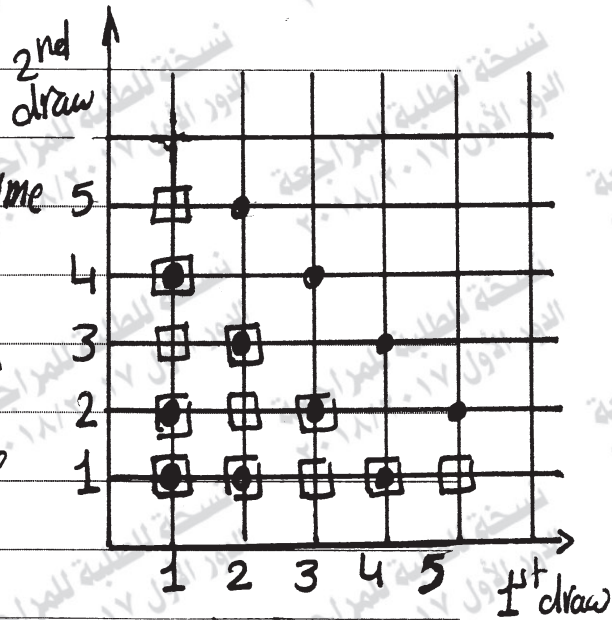


B: the product of the two numbers < 7

$$P(B) = \frac{12}{25}$$



$$P(A \cap B) = \frac{7}{25}$$



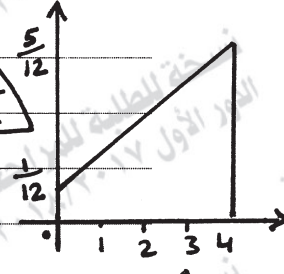
(ii) $P(\text{The product} < 7 \text{ if Sum is prime})$

$$= P(B|A) = \frac{P(A \cap B)}{P(A)} = \frac{7/25}{11/25}$$

$$= \frac{7}{11}$$



9-

$$\begin{aligned} (i) P(x < 2) &= P(0 < x < 2) \\ &= \frac{1}{2} [f(0) + f(2)] (2 - 0) \\ &= \frac{1}{12} + \frac{3}{12} = \frac{1}{3} \end{aligned}$$


$$\begin{aligned} (ii) P(2 < x < 5) &= P(2 < x < 4) \\ &= \frac{1}{2} [f(2) + f(4)] (4 - 2) \\ &= \frac{3}{12} + \frac{5}{12} = \frac{2}{3} \end{aligned}$$


(تراجعى الحلول الأخرى)

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النموذج (ب)

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10-


(a) $\frac{4}{25}$ 


11-


(a) $f(x) = \frac{x^2+1}{8}$ 

12-


(a) $P(X < K) = 0.1587$


$P(Z < \frac{K-15}{5}) = 0.1587$ 


$0.5 - P(0 < Z < \frac{15-K}{5}) = 0.1587$ 

$P(0 < Z < \frac{15-K}{5}) = 0.5 - 0.1587$ 

$\therefore \frac{15-K}{5} = 1$  $\therefore K = 10$ 

(b) $P(X > 180) = P(Z > \frac{180-175}{5})$ 


$= P(Z > 1) = 0.5 - P(0 < Z < 1)$ 

$= 0.5 - 0.3413 = 0.1587$ 

\therefore The number of students = 0.1587×1500

≈ 238 Student 

13-

(c) 0.68 

(تراجعى الحلول الأخرى)

انتتهت الإجابة وتراجعى الحلول الأخرى)