

النموذج (ج)

①

1-

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

2-

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

3-

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

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

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

(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)

٢

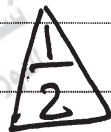
4-

(d) 1 

5-

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

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



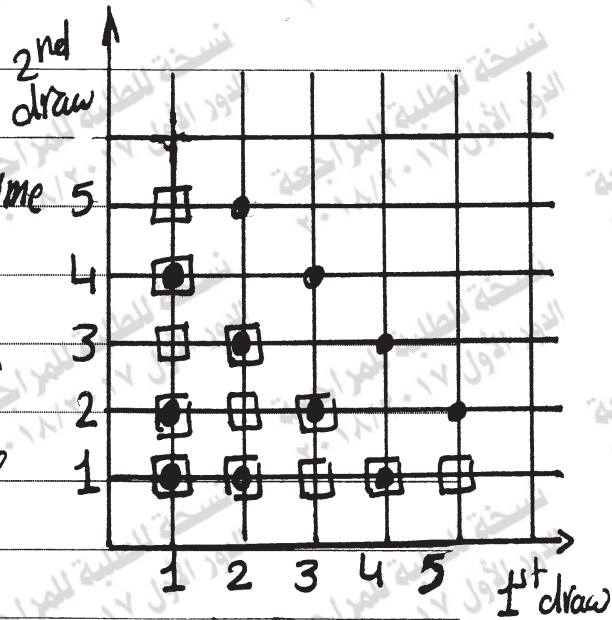
B: the product of the two numbers < 7

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



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





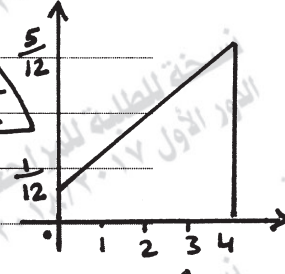
(ii) $P(\text{The product } < 7 \text{ if Sum is prime})$

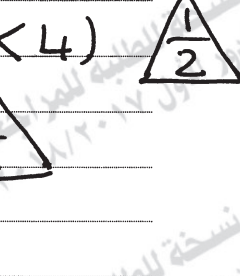
$$= P(B|A) = \frac{P(A \cap B)}{P(A)} = \frac{7/25}{11/25}$$

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



6-

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


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


(تراجعى الحلول الأخرى)

٤

7-

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

8-

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

9-

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

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

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

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

$$= 0.3413 \quad \triangle$$

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

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

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

$$= 0.5 - 0.3413 = 0.1587 \quad \triangle$$

$$\therefore \text{The number of students} = 0.1587 \times 1500$$

$$\approx 238 \text{ Student}$$


$$\triangle$$

10-

$$(c) 0.68 \quad \triangle$$

(تراجعى الحلول الأخرى)

11-

(b) 1.53 

12-

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.)

13-

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 = $\sigma = \sqrt{\sigma^2}$

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

(تراعى الحلول الأخرى)

(انتهت الإجابة وتراعى الحلول الأخرى)