PAGINA 2 - EJERCICIO 3.

	x	y	x^2	y^2	x.y
2	8	7	64	49	56
2	7	5	49	25	35
3	10	8	100	64	80
4	3	5	9	25	15
5	6	9	36	81	54
6	13	9	169	81	117
7	4	3	16	9	12
Σ	51	46	443	334	369

$\bar{x} = 51/7 = 7,2857$

$\bar{y} = 46/7 = 6,5714$

$$V(x) = \frac{443}{7} - (7,2857)^2 = 10,2042$$

$$V(y) = \frac{334}{7} - (6,5714)^2 = 4,5309$$

$$\sigma_{xy} = \frac{369}{7} - (7,2857 \times 6,5714) = 4,8370$$

$$r = \frac{4,8370}{\sqrt{10,2042 \times 4,5309}} = 0,7113$$

$6,2995$

Relación directa

$r^2 = 0,7113^2 = 0,5059$

$$b = \frac{4,8370}{10,2042} = 0,4740$$

$a = 6,5714 - (0,4740 \times 7,2857)$

$a = 3,1179$

$y = 3,1179 + 0,4740 \cdot x$

PAGINA 7 - EJERCICIO 4

DATOS	MEDIA	DESVIO
TARJETA	572	102
EFECTIVO	332	51

EFECTIVO = 0,44

TARJETA = 0,56

(A) $P(x<411) = P(z<-1,5784) = 0,05821$

(CON TARJETA)

$$z = \frac{411 - 572}{102} = -1,5784$$

(B) $P(X<411) = P(z<1,5490) = 0,9382$

EN EFECTIVO

$$Z = \frac{411 - 332}{51} = 1,5490$$

(C) $P(X<411) = P(\text{EFECTIVO}) * P(x<411) + P(\text{TARJETA}) * P(x<411)$

EN EFECTIVO O TARJETA $= (0,44 * 0,9382) + (0,56 * 0,05821)$

$= 0,4454$

(D) $P(\text{EFECTIVO} \mid x<411) = \frac{P(\text{EFECTIVO} \cap x<411)}{P(x<411)} = \frac{0,44 * 0,9382}{0,4454} = 0,928$

PÁGINA 7 - EJERCICIO 6

X = NÚMERO BOLILLAS VERDES

$Y = \begin{cases} 0 & \text{SI LAS AZULES SON PAR O } \emptyset \\ 1 & \text{SI EL NÚMERO DE BOLILLAS AZULES ES IMPAR} \end{cases}$

INFORMACIÓN:

8 VERDES
4 AZULES } 12 TOTAL — EXTRAE 3

X \ Y	0	1	2	3	P(x)
0	0	0	0	$1/55$	$1/55$
1	0	0	$12/55$	0	$12/55$
2	0	$28/55$	0	0	$28/55$
3	$14/55$	0	0	0	$14/55$
P(y)	$14/55$	$28/55$	$12/55$	$1/55$	

$N = 12 \quad n = 3$

$N_P = 8 \quad N_Q = 4$

$P(X=0, Y=3) = \frac{\binom{8}{0}\binom{4}{3}}{\binom{12}{3}} = 1/55$

$P(X=1, Y=2) = \frac{\binom{8}{1}\binom{4}{2}}{\binom{12}{3}} = 12/55$

$P(X=2, Y=1) = \frac{\binom{8}{2}\binom{4}{1}}{\binom{12}{3}} = 28/55$

$P(X=3, Y=0) = \frac{\binom{8}{3}\binom{4}{0}}{\binom{12}{3}} = 14/55$

$E(x) = 1 \cdot 12/55 + 2 \cdot 28/55 + 3 \cdot 14/55 = 2$

$E(y) = 1 \cdot 28/55 + 2 \cdot 12/55 + 3 \cdot 1/55 = 1$

$E(x^2) = 1^2 \cdot 12/55 + 2^2 \cdot 28/55 + 3^2 \cdot 14/55 = 50/11$

$E(y^2) = 1^2 \cdot 28/55 + 2^2 \cdot 12/55 + 3^2 \cdot 1/55 = 17/11$

$V(x) = 50/11 - 2^2 = 6/11 = 0,5454$

$V(y) = 17/11 - 1^2 = 6/11 = 0,5454$

$E(xy) = 0.3.1/55 + 1.2.16/55 + 2.1.28/55 + 3.0.14/55 = 72/55$ $16/11$

$Cov(xy) = 16/11 - 2.1 = -6/11$

$r = \frac{-6/11}{\sqrt{6/11 \times 6/11}} = -1$ $\qquad r^2 = -1^2 = 1$

d. SON X e Y INDEPENDIENTES? PREGUNTAR

e. $P(x \leq 1, y > 0) = P(x=1, y=2) = 16/55 = 0,218$

$P(x < 1) = P(x=0, y=3) = 1/55 = 0,0181$