ACTIVIDAD 2

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TEMA: Estadística Inferencial

PARCIAL: I

MATERIA: Estadística Inferencial

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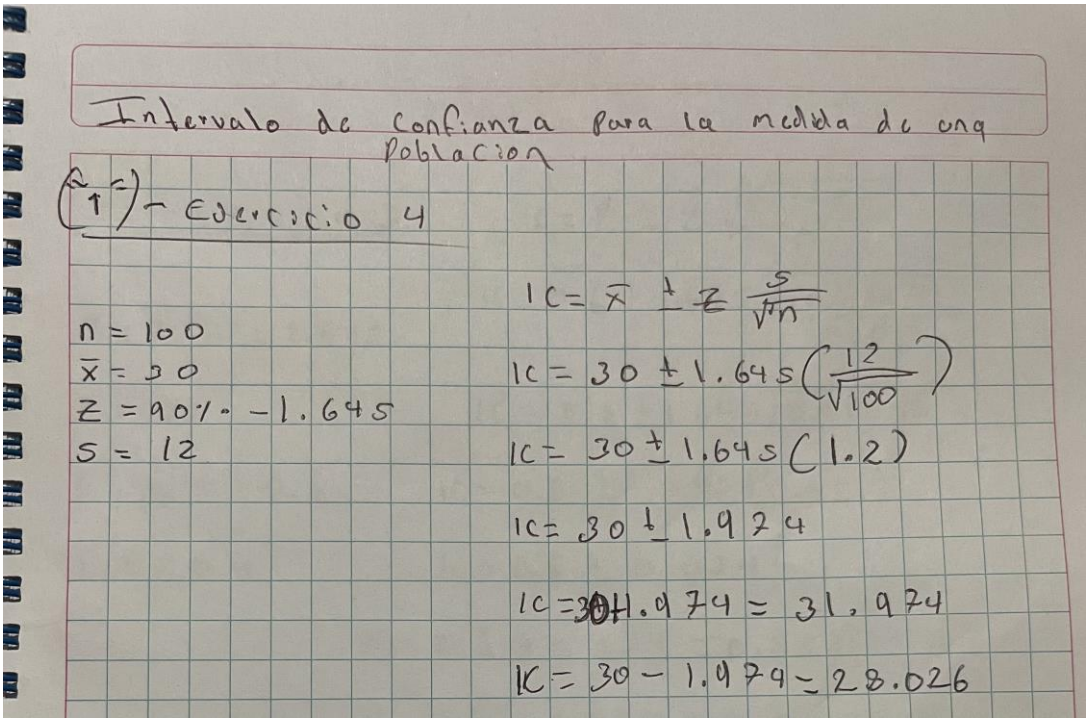
LICENCIATURA: Administración de empresas

CUATRIMESTRE: 4

ACTIVIDAD 2



Intervalo de confianza para la media de una población

(1.)- Ejercicio 4

$n = 100$
$\bar{x} = 30$
$Z = 90\% = 1.645$
$S = 12$

$IC = \bar{x} \pm Z \frac{S}{\sqrt{n}}$

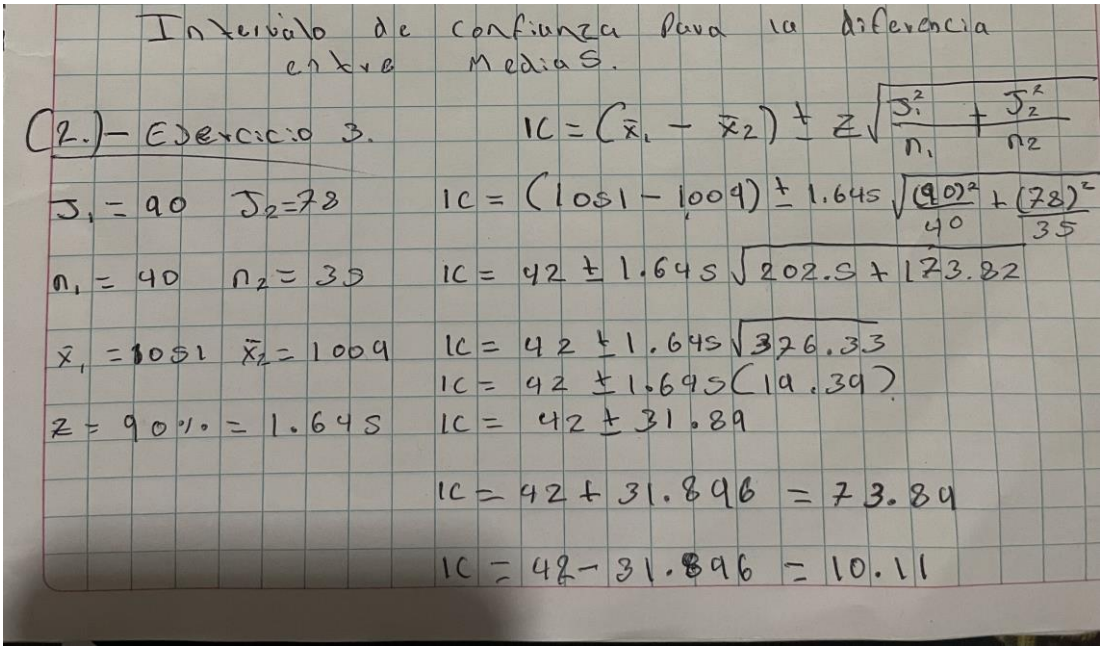
$IC = 30 \pm 1.645\left(\frac{12}{\sqrt{100}}\right)$

$IC = 30 \pm 1.645(1.2)$

$IC = 30 \pm 1.974$

$IC = 30 + 1.974 = 31.974$

$IC = 30 - 1.974 = 28.026$



Intervalo de confianza para la diferencia entre Medias.

(2.)- Ejercicio 3.

$S_1 = 90 \quad S_2 = 78$

$n_1 = 40 \quad n_2 = 35$

$\bar{x}_1 = 1051 \quad \bar{x}_2 = 1009$

$Z = 90\% = 1.645$

$IC = (\bar{x}_1 - \bar{x}_2) \pm Z\sqrt{\frac{S_1^2}{n_1} + \frac{S_2^2}{n_2}}$

$IC = (1051 - 1009) \pm 1.645\sqrt{\frac{(90)^2}{40} + \frac{(78)^2}{35}}$

$IC = 42 \pm 1.645\sqrt{202.5 + 173.82}$

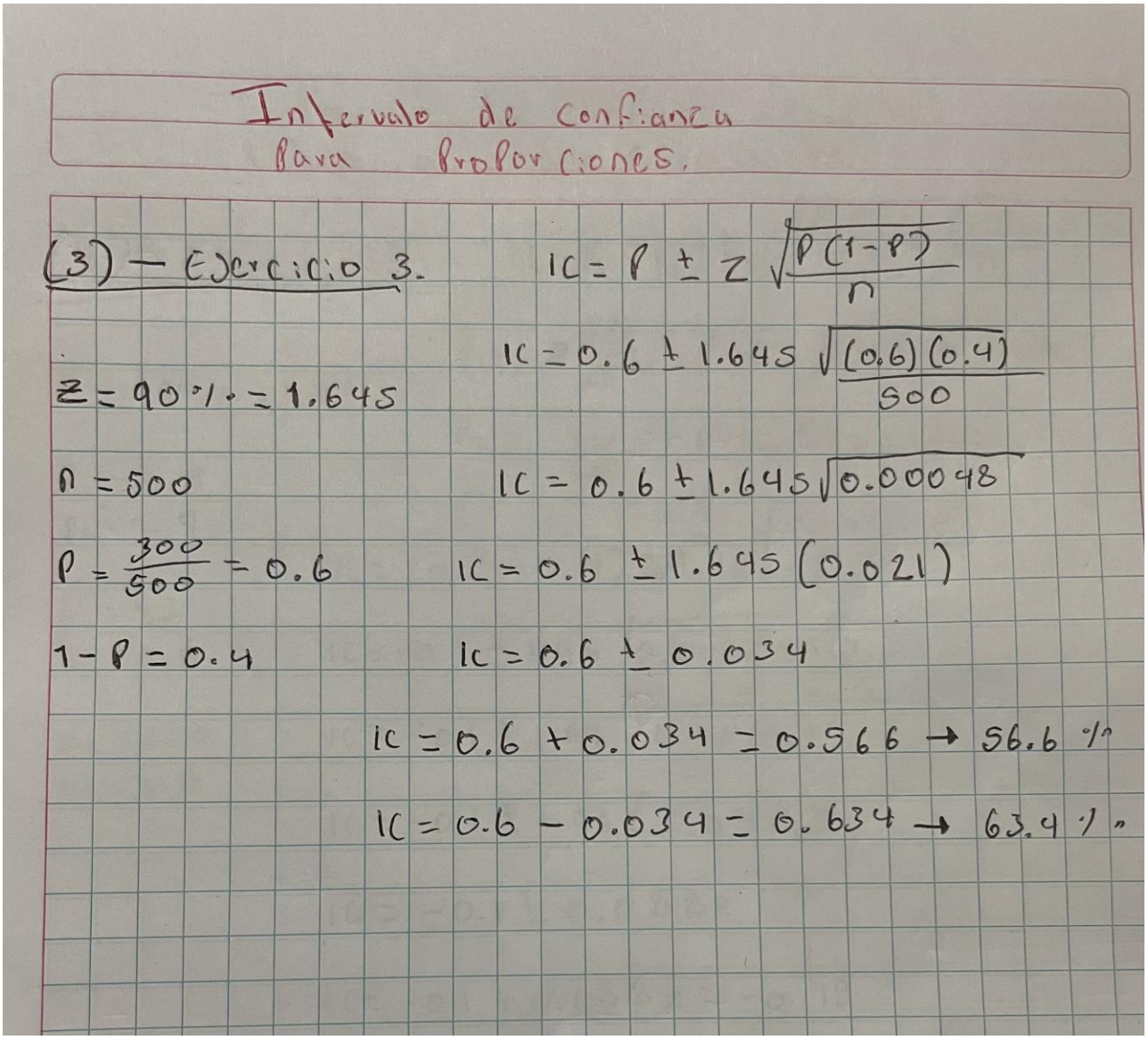
$IC = 42 \pm 1.645\sqrt{376.33}$

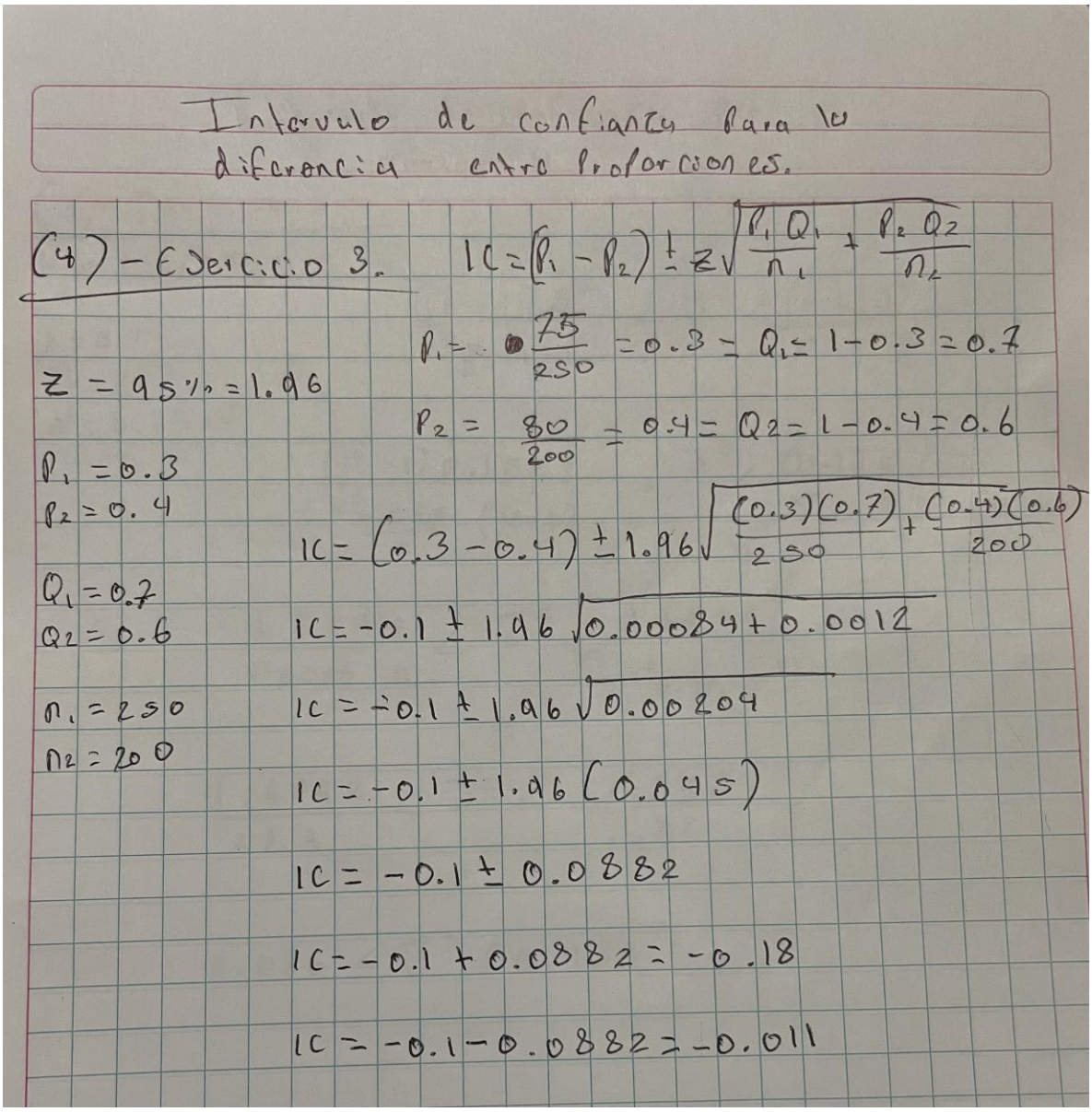
$IC = 42 \pm 1.645(19.39)$

$IC = 42 \pm 31.89$

$IC = 42 + 31.896 = 73.89$

$IC = 42 - 31.896 = 10.11$


Intervalo de confianza
para proporciones.
(3) – Ejercicio 3.
$IC = P \pm Z\sqrt{\frac{P(1-P)}{n}}$
$Z = 90\% = 1.645$
$IC = 0.6 \pm 1.645\sqrt{\frac{(0.6)(0.4)}{500}}$
$n = 500$
$IC = 0.6 \pm 1.645\sqrt{0.00048}$
$P = \frac{300}{500} = 0.6$
$IC = 0.6 \pm 1.645\,(0.021)$
$1 - P = 0.4$
$IC = 0.6 \pm 0.034$
$IC = 0.6 + 0.034 = 0.566 \rightarrow 56.6\%$
$IC = 0.6 - 0.034 = 0.634 \rightarrow 63.4\%$



Intervalo de confianza para la diferencia entre Proporciones.

(4) - Ejercicio 3.

$$IC = (P_1 - P_2) \pm Z\sqrt{\frac{P_1 Q_1}{n_1} + \frac{P_2 Q_2}{n_2}}$$

$P_1 = \frac{75}{250} = 0.3 = Q_1 = 1 - 0.3 = 0.7$

$P_2 = \frac{80}{200} = 0.4 = Q_2 = 1 - 0.4 = 0.6$

$Z = 95\% = 1.96$

$P_1 = 0.3$

$P_2 = 0.4$

$Q_1 = 0.7$

$Q_2 = 0.6$

$n_1 = 250$

$n_2 = 200$

$$IC = (0.3 - 0.4) \pm 1.96\sqrt{\frac{(0.3)(0.7)}{250} + \frac{(0.4)(0.6)}{200}}$$

$$IC = -0.1 \pm 1.96\sqrt{0.00084 + 0.0012}$$

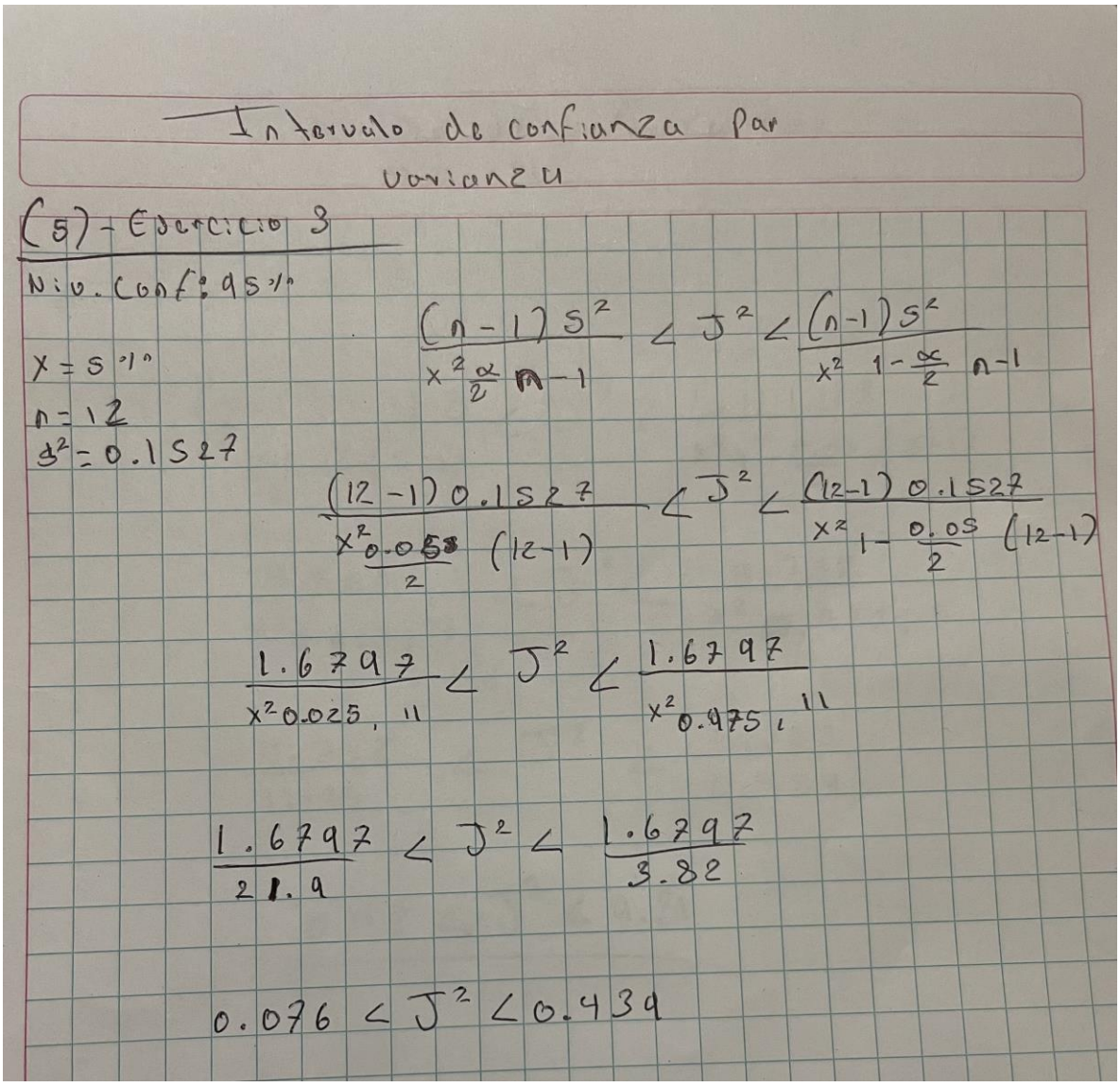
$$IC = -0.1 \pm 1.96\sqrt{0.00204}$$

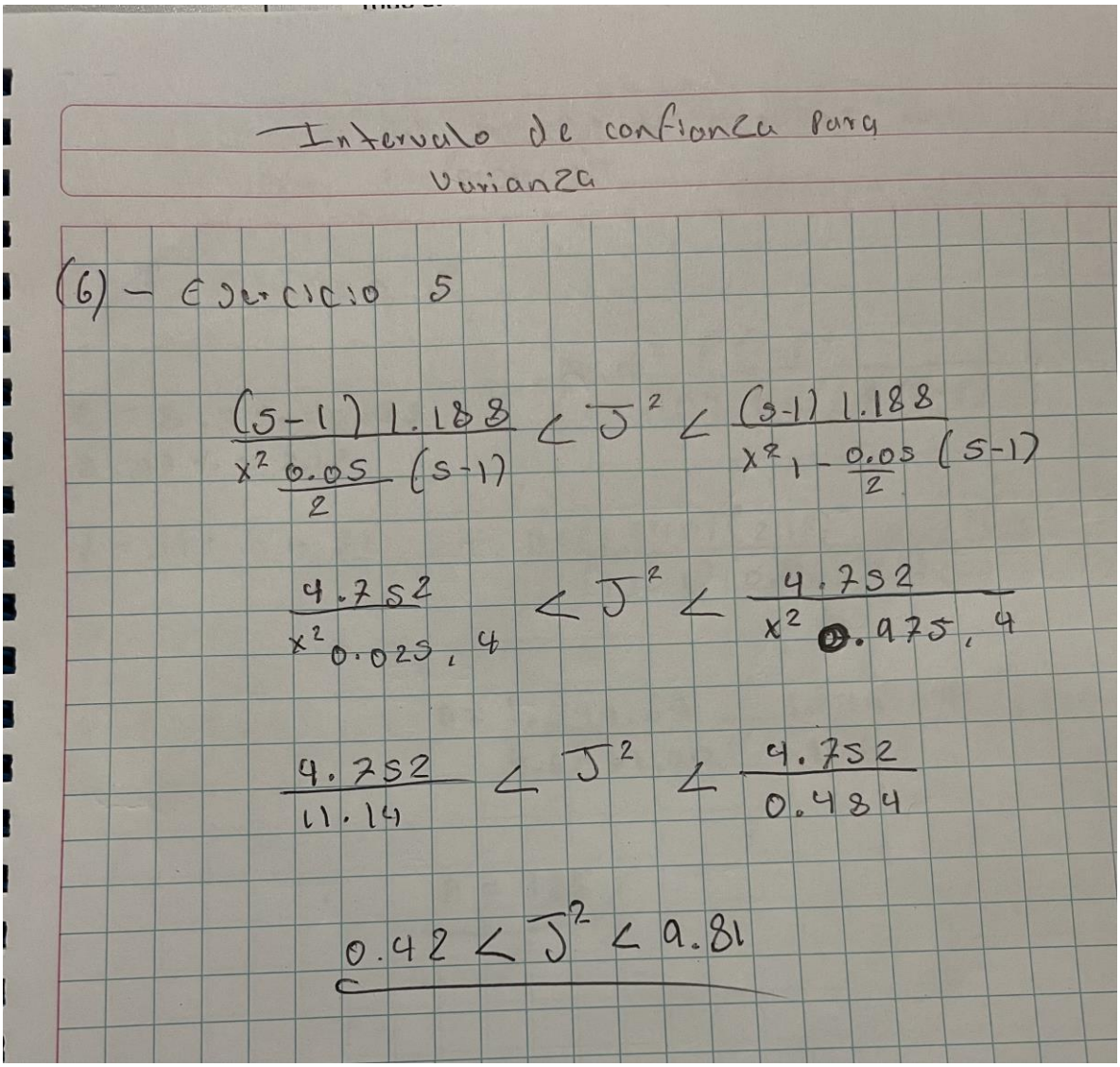
$$IC = -0.1 \pm 1.96\,(0.045)$$

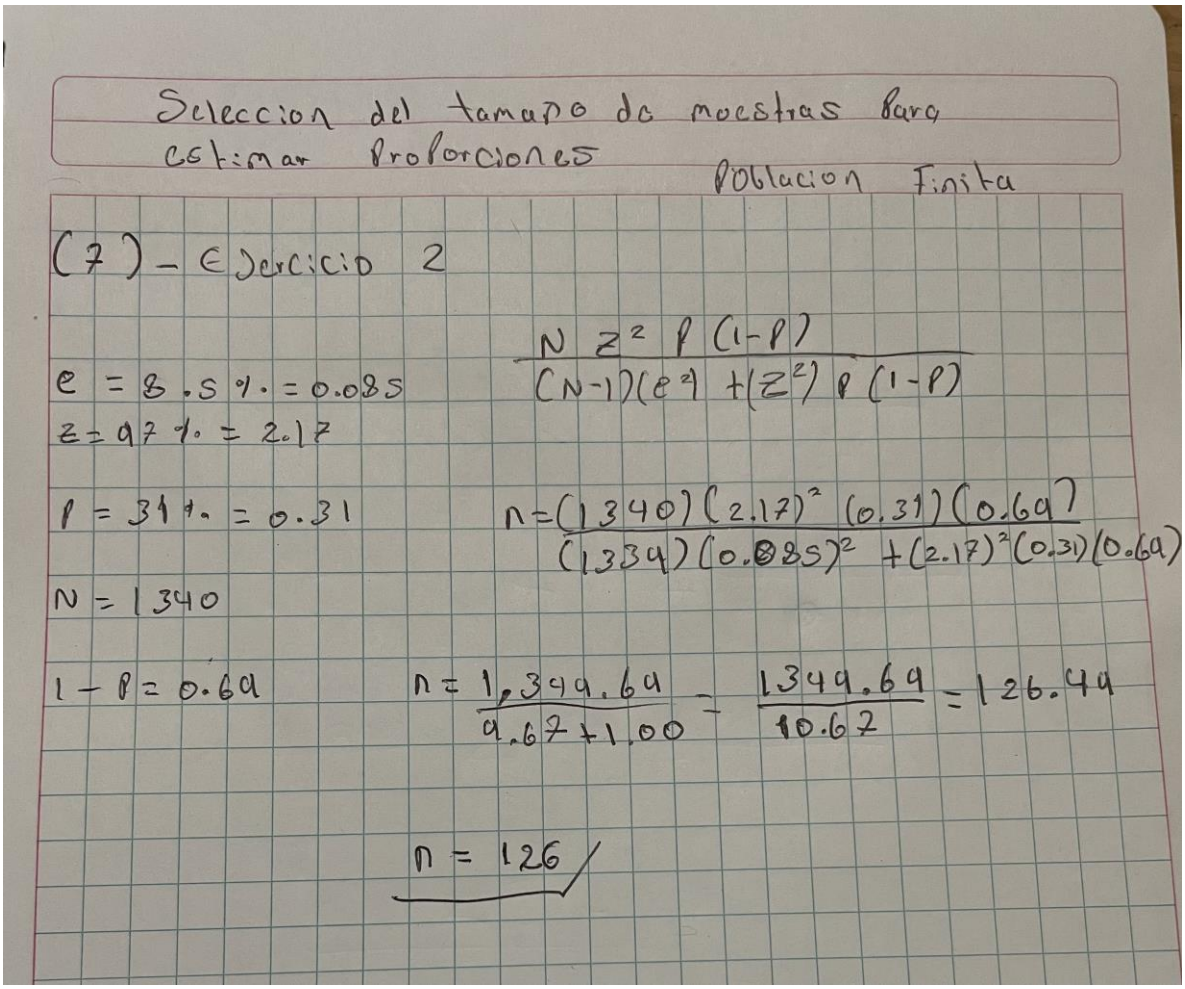
$$IC = -0.1 \pm 0.0882$$

$$IC = -0.1 + 0.0882 = -0.18$$

$$IC = -0.1 - 0.0882 = -0.011$$


Intervalo de confianza par
varianza
(5) - Ejercicio 3
Niv. Conf: 95%
X = 5%
n = 12
s² = 0.1527
(n-1)s² / x² α/2 n-1 < J² < (n-1)s² / x² 1-α/2 n-1
(12-1)0.1527 / x² 0.05/2 (12-1) < J² < (12-1)0.1527 / x² 1-0.05/2 (12-1)
1.6797 / x² 0.025, 11 < J² < 1.6797 / x² 0.975, 11
1.6797 / 21.9 < J² < 1.6797 / 3.82
0.076 < J² < 0.439


Intervalo de confianza para
Varianza
(6) - Ejercicio 5
$\frac{(5-1)1.188}{x^2 \frac{0.05}{2}(5-1)} < \bar{J}^2 < \frac{(5-1)1.188}{x^2_{1-\frac{0.05}{2}}(5-1)}$
$\frac{4.752}{x^2_{0.025,4}} < \bar{J}^2 < \frac{4.752}{x^2_{0.975,4}}$
$\frac{4.752}{11.14} < \bar{J}^2 < \frac{4.752}{0.484}$
$0.42 < \bar{J}^2 < 9.81$


Seleccion del tamaño de muestras para estimar Proporciones
Poblacion Finita
(7) - Ejercicio 2
e = 8.5 % = 0.085
z = 97 % = 2.17
p = 31 % = 0.31
N = 1340
1 - p = 0.69
n = (N z² p (1-p)) / ((N-1)(e²) + (z²) p (1-p))
n = (1340)(2.17)² (0.31)(0.69) / (1339)(0.085)² + (2.17)²(0.31)(0.69)
n = 1,349.69 / 9.67 + 1.00 = 1349.69 / 10.67 = 126.49
n = 126