



## **Mi Universidad**

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*Nombre del tema: Muestreo*

*Parcial: 1er parcial*

*Nombre de la Materia: Estadística inferencial*

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*Nombre de la licenciatura: Psicología*

*Cuatrimestre: 4to cuatrimestre*

① En un municipio se pretende realizar una encuesta sobre la opinión de las personas de un producto nuevo de limpieza, el cual cuenta con 45,000 amas de casa, por lo tanto, entrevistar a todas sería tedioso y costoso, por lo cual se ha tomado la decisión de obtener una muestra. No existen datos anteriores para estimar el valor de  $p$  (trabajelo con un error de estimación de 3%).

$$\begin{aligned}
 N &= 45,000 & 45,000 \times 0.5 \times 0.5 &= \div ((44,999 \times 0.000225) + (0.5 \times 0.5)) = 1084.36 \\
 p &= 50\% = 0.5 \\
 q &= 1 - p = 0.5 \\
 B &= 3\% = 0.03 & & \approx \underline{1085} \\
 n &= \frac{(45,000)(0.5)(0.5)}{((44,999)(0.000225)(0.5 \times 0.5))} \\
 D &= \frac{B^2}{4} = \frac{(0.03)^2}{4} = 0.000225
 \end{aligned}$$

② En un municipio se pretende realizar una encuesta sobre la opinión de un producto de limpieza, el cual cuenta con 20,000 amas de casa, por lo tanto, una encuesta llevada el año pasado arrojó que el 72.5% de las personas están satisfechas con este producto. (trabajelo con un error de estimación del 5%).

$$\begin{aligned}
 N &= 20,000 \\
 p &= 72.5\% = 0.725 \\
 q &= 1 - p = 0.275 \\
 B &= 5\% = 0.05 \\
 n &= \frac{(20,000)(0.725)(0.275)}{((19,999)(0.000265)(0.725 \times 0.275))} = \\
 D &= \frac{B^2}{4} = \frac{(0.05)^2}{4} = 0.000625
 \end{aligned}$$

$$\begin{aligned}
 20,000 \times 0.725 \times 0.275 &= \div ((19,999 \times 0.000625) + (0.725 \times 0.275)) = \\
 &= \underline{314.0072842} \approx \underline{314}
 \end{aligned}$$

$$\textcircled{3} N = 50,000$$

$$P = 76\% = 0.76$$

$$q = 1 - P = 0.24$$

$$B = 4\% = 0.04$$

$$n = \frac{(50,000)(0.76)(0.24)}{((49,999)(0.0004) + (0.76 \times 0.24))} =$$

$$D = \frac{B^2}{4} = \frac{(0.04)^2}{4} = 0.0004$$

$$50,000 \times 0.76 \times 0.24 = \frac{\%}{\%} ((49,999 \times 0.0004) + (0.76 \times 0.24)) =$$

$$= 451.88$$

$$\approx \underline{452} \downarrow$$

$$\textcircled{4} N = 10,000$$

$$P = 50\% = 0.5$$

$$q = 1 - P = 0.5$$

$$B = 5\% = 0.05$$

$$n = \frac{(10,000)(0.5)(0.5)}{((9,999)(0.000625) + (0.5 \times 0.5))} =$$

$$D = \frac{B^2}{4} = \frac{(0.05)^2}{4} = 0.000625$$

$$10,000 \times 0.5 \times 0.5 = \frac{\%}{\%} ((9,999 \times 0.000625) + (0.5 \times 0.5)) = 384.6537$$

$$\approx \underline{384} \downarrow$$

$$\textcircled{5} N = 25,000$$

$$P = 55\% = 0.55$$

$$q = 1 - P = 0.45$$

$$B = 2\% = 0.02$$

$$n = \frac{(25,000)(0.55)(0.45)}{((24,999)(0.0001) + (0.55 \times 0.45))} =$$

$$D = \frac{B^2}{4} = \frac{(0.02)^2}{4} = 0.0001$$

$$25,000 \times 0.55 \times 0.45 = \frac{\%}{\%} ((24,999 \times 0.0001) + (0.55 \times 0.45)) = 2252.12$$

$$\approx \underline{2252} \downarrow$$

$$\textcircled{6} \dots N = 15,000$$

$$P = 66\% = 0.66$$

$$q = 1 - P = 0.34$$

$$B = 3\% = 0.03$$

$$n = \frac{(15,000)(0.66)(0.34)}{((14,999)(0.000225) + (0.66 \times 0.34))} =$$

$$D = \frac{B^2}{4} = \frac{(0.03)^2}{4} = 0.000225$$

$$15,000 \times 0.66 \times 0.34 = \frac{1}{4} ((14,999 \times 0.000225) + (0.66 \times 0.34)) =$$

$$= 935.21 \approx \underline{935}$$

$$\textcircled{7} \dots N = 250,000$$

$$P_1 = 65\% = 0.65$$

$$q_1 = 1 - P = 0.35$$

$$B_1 = 2\% = 0.02$$

$$n_1 = \frac{(250,000)(0.65)(0.35)}{((249,999)(0.0001) + (0.65 \times 0.35))} = 2,254.49$$

$$P_2 = 50\% = 0.5$$

$$q_2 = 1 - P = 0.5$$

$$B_2 = 3\% = 0.03$$

$$n_2 = \frac{(250,000)(0.5)(0.5)}{((249,999)(0.000225) + (0.5 \times 0.5))} = 1,106.19$$

$$\approx \underline{1,106}$$

$$\textcircled{8} \dots N = 35,000$$

$$P_1 = 55\% = 0.55$$

$$q_1 = 1 - P = 0.45$$

$$B_1 = 5\% = 0.05$$

$$n_1 = \frac{(35,000)(0.55)(0.45)}{((34,999)(0.000625) + (0.55 \times 0.45))} = 391.58$$

$$P_2 = 52\% = 0.52$$

$$q_2 = 1 - P = 0.48$$

$$B_2 = 3\% = 0.03$$

$$n_2 = \frac{(35,000)(0.52)(0.48)}{((34,999)(0.000225) + (0.52 \times 0.48))} = 1,035.28$$

$$\approx \underline{1036}$$