Resolução do teste 6 Turma 41

1) $\bar{x} = 1200 \quad \sigma = a \quad n = 324$

$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}} = \frac{a}{\sqrt{324}} = \frac{a}{18} \qquad \frac{a}{18} = 6 \Leftrightarrow a = 6 \times 18 \Leftrightarrow a = 108$

2) $\hat{p} = 57{,}1\% = 0{,}571 \qquad \frac{185}{n} = 0{,}571 \Leftrightarrow 185 = 0{,}571\, n$

$\Leftrightarrow n = \frac{185}{0{,}571}$

$\Leftrightarrow n \approx 324$

3) $\bar{x} = \frac{4210{,}89 + 4249{,}11}{2} = 4230$

$\varepsilon = \frac{4249{,}11 - 4210{,}89}{2} \Leftrightarrow \varepsilon = 19{,}11$

$1{,}96 \times \frac{s}{\sqrt{64}} = 19{,}11 \Leftrightarrow s = \frac{19{,}11 \times 8}{1{,}96} \Leftrightarrow s = 78$

$(\sqrt{64} = 8)$

4) $n = 300 \quad 60 \text{ fav.} \quad \hat{p} = \frac{60}{300} = 0{,}2$

$\left]0{,}2 - 1{,}96 \times \sqrt{\frac{0{,}2 \times 0{,}8}{300}} ; 0{,}2 + 1{,}96 \times \sqrt{\frac{0{,}2 \times 0{,}8}{300}}\right[$

$=]0{,}15 ; 0{,}25[$

5) $n = 50 \quad \bar{x} = 12 \quad \sigma = 1 \quad z = 1{,}96$

5.1) $\left]12 - 1{,}96 \times \frac{1}{\sqrt{50}} ; 12 + 1{,}96 \times \frac{1}{\sqrt{50}}\right[=]11{,}723 ; 12{,}277[$

5.2) $\varepsilon < 0{,}01$

$1{,}96 \times \frac{1}{\sqrt{n}} = 0{,}01 \Leftrightarrow \frac{1{,}96 \times 1}{0{,}01} = \sqrt{n} \Leftrightarrow n = \left(\frac{1{,}96 \times 1}{0{,}01}\right)^2$

$\Leftrightarrow n = 38416$ R: para valores superiores a 38416.

6) $\hat{p} = 0,15 \quad z = 2,576 \quad A < 0,035$ logo $E < 0,0175$

$$2,576 \times \sqrt{\frac{0,15 \times 0,85}{n}} = 0,0175 \Leftrightarrow \frac{2,576 \times \sqrt{0,15 \times 0,85}}{0,0175} = \sqrt{n}$$

$$\Leftrightarrow n = \left(\frac{2,576}{0,0175}\right)^2 \times 0,15 \times 0,85 \Leftrightarrow n = 2762,6496$$

R: $n = 2763$

7) Colocamos na calculadora gráfica as listas:

7.1)

Lista 1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Lista 2	2	2	3	3	4	5	1	1	5	6	4	3	2	6	3

e obtemos $\bar{x} = 13,64 \quad s = 4,18$ e $n = 50$

90% $z = 1,645$ $\quad]13,64 - 1,645 \times \frac{4,18}{\sqrt{50}} ; 13,64 + 1,645 \times \frac{4,18}{\sqrt{50}}[$

$=]12,67 ; 14,61[$

7.2) $z = 1,96 \quad n = 50 \quad \hat{p} = \frac{19}{50} = 0,38$

$$]0,38 - 1,96 \times \sqrt{\frac{0,38 \times 0,62}{50}} ; 0,38 + 1,96 \times \sqrt{\frac{0,38 \times 0,62}{50}}[=$$

$=]0,245 ; 0,515[$