Образец выполнения индивидуального задания (вар.31)

Задача 33.

$\alpha := 1.5$ $n := 162$ $x1 := 132$ $x2 := 156$ $m1 := \frac{\alpha + 0}{2}$ $d1 := \frac{(\alpha - 0)^2}{12}$ $M := n \cdot m1$ $D := n \cdot d1$

$$cnorm\left[\frac{(x2 - M)}{\sqrt{D}}\right] - cnorm\left[\frac{(x1 - M)}{\sqrt{D}}\right] = 0.028$$

Задача 36.

$a := 120$ $b := \sqrt{144}$ $n := 110$ $k := 0 .. n - 1$ $P := 0.95$ $G_k := qnorm(rnd(1), a, b)$

$Mv := mean(G)$ $Mv = 119.49$

$Di := \frac{n \cdot var(G)}{(n - 1)}$ $Di = 145.957$ $bv := \sqrt{Di}$ $bv = 12.081$

$u := qnorm\left[\frac{(1 + P)}{2}, 0, 1\right]$ $u = 1.96$

$bv \cdot \frac{u}{\sqrt{n}} = 2.258$ $dintv := \begin{pmatrix} Mv - bv \cdot \frac{u}{\sqrt{n}} \\ Mv + bv \cdot \frac{u}{\sqrt{n}} \end{pmatrix}$ $dintv = \begin{pmatrix} 117.233 \\ 121.748 \end{pmatrix}$

$b \cdot \frac{u}{\sqrt{n}} = 2.243$ $dintT := \begin{pmatrix} a - b \cdot \frac{u}{\sqrt{n}} \\ a + b \cdot \frac{u}{\sqrt{n}} \end{pmatrix}$ $dintT = \begin{pmatrix} 117.757 \\ 122.243 \end{pmatrix}$

Задача 37.

$a := 1.7$ $s := \sqrt{0.8}$ $P := 0.9$ $n := 26$

$t := qt\left[\frac{(1 + P)}{2}, n - 1\right]$ $t = 1.708$ $dint7 := \begin{pmatrix} a - s \cdot \frac{t}{\sqrt{n}} \\ a + s \cdot \frac{t}{\sqrt{n}} \end{pmatrix}$ $\Delta 7 := s \cdot \frac{t}{\sqrt{n}}$ $\Delta 7 = 0.3$

$dint7 = \begin{pmatrix} 1.4 \\ 2 \end{pmatrix}$

Задача 38.

$n := 16$ $b := \sqrt{64}$ $P := 0.98$ $t1 := qchisq\left[\frac{(1 - P)}{2}, n - 1\right]$ $t1 = 5.229$ $t2 := qchisq\left[\frac{(1 + P)}{2}, n - 1\right]$ $t2 = 30.578$

$Dint8 := \begin{bmatrix} b^2 \cdot \frac{(n - 1)}{t2} \\ b^2 \cdot \frac{(n - 1)}{t1} \end{bmatrix}$ $Dint8 = \begin{pmatrix} 31.395 \\ 183.579 \end{pmatrix}$ $\sigma int := \sqrt{Dint8}$ $\sigma int = \begin{pmatrix} 5.603 \\ 13.549 \end{pmatrix}$

Задача 39.

$n := 41$ $m := 24$ $P := 0.95$ $u := qnorm\left[\frac{(1 + P)}{2}, 0, 1\right]$ $u = 1.96$ $\omega := \frac{m}{n}$

$$p(n, \omega) := \begin{bmatrix} \frac{n}{\left(n + u^2\right)} \cdot \left[\omega + \frac{u^2}{2 \cdot n} - u \cdot \sqrt{\omega \cdot \frac{(1 - \omega)}{n} + \left(\frac{u}{2 \cdot n}\right)^2}\right] \\ \frac{n}{\left(n + u^2\right)} \cdot \left[\omega + \frac{u^2}{2 \cdot n} + u \cdot \sqrt{\omega \cdot \frac{(1 - \omega)}{n} + \left(\frac{u}{2 \cdot n}\right)^2}\right] \end{bmatrix} \qquad p(n, \omega) = \begin{pmatrix} 0.434 \\ 0.722 \end{pmatrix}$$

Задача 40.

$p2 := 0.032$ $\omega := 0$ $N := \left(root\left(p(n, \omega)_1 - p2, n\right)\right)$ $N = 113.364$ $N1 := \frac{\ln(1 - P)}{\ln(1 - p2)}$ $N1 = 92.111$

$p(N, 0) = \begin{pmatrix} 0 \\ 0.033 \end{pmatrix}$ $p(115, 0) = \begin{pmatrix} 0 \\ 0.03232 \end{pmatrix}$ $p(116, 0) = \begin{pmatrix} 0 \\ 0.03205 \end{pmatrix}$ $p(117, 0) = \begin{pmatrix} 0 \\ 0.03179 \end{pmatrix}$