

Aufgaben

Lösungen und Kommentar

1. Welcher Test ist der richtige?

<p>a)</p> <p>Binomial Cdf...</p> <p>Num Trials, n: 100. Prob Success, p: 0.7 Lower Val: 0 Upper Val: 60 Enter=OK ESC=CANCEL</p> <p>Name=</p> <p>MAIN RAD AUTO FUNC</p>	<p>Zu wenig Befürworter, H_0 verwerfen.</p> <p>Binomial Cdf...</p> <p>Cdf = .020989 n = 100. p = .7 Low Val = 0 Up Val = 60 Enter=OK</p> <p>Name=</p> <p>MAIN RAD AUTO FUNC</p>
<p>b)</p> <p>T Test</p> <p>μ_0: 8.5 \bar{x}: 8.6 S_x: 0.2 n: 50 Alternate Hyp: $\mu \neq \mu_0$ Results: Calculate+ Enter=OK ESC=CANCEL</p> <p>Name=</p> <p>USE \leftarrow AND \rightarrow TO OPEN CHOICES</p>	<p>Die Vorschrift wurde massiv verletzt.</p> <p>T Test</p> <p>$\mu \neq \mu_0$ μ_0 = 8.5 t = 3.53553 P Value = .0009 df = 49 \bar{x} = 8.6 S_x = .2 n = 50. Enter=OK</p> <p>Name=</p> <p>MAIN RAD AUTO FUNC</p>
<p>c)</p> <p>Z Test</p> <p>μ_0: 0.7 σ: 0.006 \bar{x}: 0.697 n: 100 Alternate Hyp: $\mu \neq \mu_0$ Results: Calculate+ Enter=OK ESC=CANCEL</p> <p>Name=</p> <p>TYPE + (ENTER)=OK AND (ESC)=CANCEL</p>	<p>H_0 verwerfen, die Anlage ist nicht in Ordnung</p> <p>Z Test</p> <p>$\mu \neq \mu_0$ μ_0 = .7 z = -5 P Value = 5.7421e-7 \bar{x} = .697 n = 100. σ = .006 Enter=OK</p> <p>Name=</p> <p>MAIN RAD AUTO FUNC</p>
<p>d) (wie Aufgabe a)</p> <p>Binomial Cdf...</p> <p>Cdf = .316273 n = 300 p = .04 Low Val = 14 Up Val = 300 Enter=OK</p> <p>Name=</p> <p>MAIN RAD AUTO FUNC</p>	<p>oder über die Binomialverteilung</p> <p>$1 - \sum_{x=0}^{13} \binom{300}{x} \cdot (.04)^x \cdot (.96)^{300-x}$</p> <p>.316273</p> <p>Name=</p> <p>MAIN RAD AUTO FUNC 1/30</p>
<p>e)</p> <p>Z Test</p> <p>μ_0: 14.5 σ: 0.2 \bar{x}: 14.56 n: 60 Alternate Hyp: $\mu > \mu_0$ Results: Calculate+ Enter=OK ESC=CANCEL</p> <p>Name=</p> <p>USE \leftarrow AND \rightarrow TO OPEN CHOICES</p>	<p>Die Vermutung wird erhärtet.</p> <p>Z Test</p> <p>$\mu > \mu_0$ μ_0 = 14.5 z = 2.32379 P Value = .010068 \bar{x} = 14.56 n = 60. σ = .2 Enter=OK</p> <p>Name=</p> <p>MAIN RAD AUTO FUNC</p>

f) (dasselbe wie e)

Tools Plots List Calc Distr Tests Ints

Z Test

μ_0 : 71

σ : 9

\bar{x} : 73.5

n: 100

Alternate Hyp: $\mu > \mu_0$

Results: Calculate

Enter=OK ESC=CANCEL

Name=

USE \leftarrow AND \rightarrow TO OPEN CHOICES

Der statistische Schluss ist korrekt.

Tools Plots List Calc Distr Tests Ints

Z Test

$\mu > \mu_0$

μ_0 =71.

σ =2.77778

P Value =.002737

\bar{x} =73.5

n =100.

σ =9.

Enter=OK

Name=

MAIN RAD AUTO FUNC

2. Vertrauensintervalle:

a)

Tools Plots List Calc Distr Tests Ints

Z Interval

σ : 0.05

\bar{x} : 6.12

n: 20

C Level: .95

Enter=OK ESC=CANCEL

Name=

MAIN RAD AUTO FUNC

$z = 1.96$

Tools Plots List Calc Distr Tests Ints

Z Interval

C Int =(-6.098,6.142)

\bar{x} =6.12

ME =.021913

n =20.

σ =.05

Enter=OK

Name=

MAIN RAD AUTO FUNC

b)

Tools Plots List Calc Distr Tests Ints

T Interval

\bar{x} : 60.1

Sx: 1.5

n: 100

C Level: .95

Enter=OK ESC=CANCEL

Name=

TYPE \leftarrow (ENTER)=OK AND (ESC)=CANCEL

$t = 1.984$

Tools Plots List Calc Distr Tests Ints

T Interval

C Int =(-59.8,60.4)

\bar{x} =60.1

ME =.297633

df =99

Sx =1.5

n =100.

Enter=OK

Name=

MAIN RAD AUTO FUNC