Home work

10.14) a) $n=50$ $\mu=15$ $S=0,5$ $x=14,9$

$S_{\bar{x}} = \frac{S}{\sqrt{n}} = \frac{0,5}{\sqrt{50}} = 0,071$ $Z = \frac{14,9-15}{0,071} = -1,41$

$P(x<2) = 0,0793$

b) $\mu=14,8$ $z = \frac{14,9-14,8}{0,071} = 1,41$ $P(z>0) = 0,5$

10.20) $z = \frac{5,23-5,5}{\frac{0,24}{\sqrt{64}}} = -9$ $P(x<-9) \approx 0$

10.21) $z = \frac{788-800}{\frac{40}{\sqrt{20}}} = -1,64$ $P(R<-1,64) = 0,101$

10.29) $\alpha=0,005$ $dF=19$ $t<-1,729$

$t = \frac{33,1-35}{\frac{4,5}{\sqrt{20}}} = -1,98$ takes less than 35

10.47) $n = \frac{(1,645+1,282)^2(0,24)^2}{0,3^2} = 5,48 < 6$

10.48) $\beta=0,1$ $\delta=5,8$ $S=35,5-40=-4,1$

$\alpha=0,05$ $z_{0,05}=1,645$ $z_{0,1}=1,28$

$n = \frac{(1,645+1,28)^2(5,8)^2}{(-4,1)^2} = 17,12 \approx 18$

Chapter 8

3) $\sigma=20$ $\mu=50$ $n=64$

a) $\bar{x}=52,5$ $z = \frac{52,5-50}{\frac{20}{8}} = 1$ $P=0,3174$

b) $\bar{x}=55$ $z = \frac{55-50}{\frac{20}{8}} = 2$ $P=0,0456$

c) $\bar{x}=57,5$ $z = \frac{57,5}{\frac{20}{8}} = 3$ $P=0,0026$

4) $M_0 = 8,2$ $n = 10$ $M = 8,179$

$\sigma = \sqrt{\frac{1}{9}(8,18 - 8,179)^2 + \dots} = 0,0226$

$t = \frac{8,179 - 8,2}{\frac{0,0226}{\sqrt{10}}} = -2,94 < -2,262$ $P = 0,008$

7) $\frac{8,31 - 8,2}{0,02/\sqrt{16}} = 13,41$ $\delta = 8,32 - 8,2 = 0,12$

$z = \frac{0,12}{0,02/\sqrt{16}} = 14,63$

10) $z = \frac{7,2 - 7,6}{1,2/\sqrt{16}} = \frac{-0,4}{0,3} = -1,321$ a) $z_\alpha = -1,645$ $P = 0,05$

b) $z_\alpha = -2,33 < -1,333$

c) $P(z < -1,333) \approx 0,0518$

11) $n = 20$ $\bar{x} = 105$ $n = 100$

a) $z = \frac{105 - 100}{5/\sqrt{20}} = 4,472$ $P(z > 4,472) \approx 0$

b) $z = \frac{105 - 100}{10/\sqrt{20}} = 2,236$ $P(z > 2,236) = 0,0127$

c) $z = \frac{105 - 100}{15/\sqrt{20}} = 1,49$ $P(z > 1,49) \approx 0,0681$

21) $M_0 = 30$ $n = 10$ $\bar{x} = 26,4$ $S = 3,5$

$t = \frac{26,4 - 30}{3,5/\sqrt{10}} = -3,25$ $t_\alpha = -1,833$ $t_2 > t_1$ reject