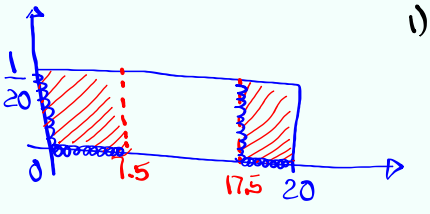
Statistics

Lecture 16

Feb 19-8:47 AM

Consider a uniform Prob. dist. for all values from 0 to 20.



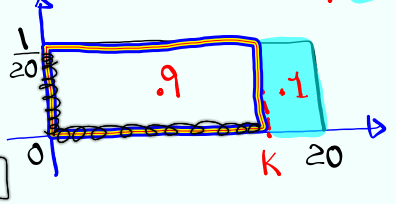
1) $P(x<7.5) = (7.5-0)\cdot\frac{1}{20} = \frac{7.5}{20} = .375 = \frac{3}{8}$

2) $P(x>17.5) = (20-17.5)\cdot\frac{1}{20} = \frac{2.5}{20} = .125 = \frac{1}{8}$

3) Find K such that it separates the top 10% from the rest.

$(K-0)\cdot\frac{1}{20} = .9$

$K = 20(.9)$ $\boxed{K=18}$



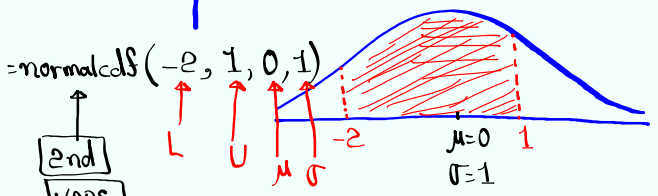
Apr 16-1:46 PM

Find $P(-2<Z<1)$

= normalcdf(−2, 1, 0, 1)

2nd VARS

L U μ σ

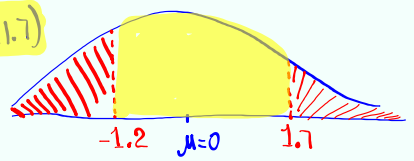


= .819

Find $P(Z<-1.2 \text{ OR } Z>1.7)$

= 1 − $P(-1.2<Z<1.7)$

Total Area



= 1 − normalcdf(−1.2, 1.7, 0, 1)

(−) L U μ σ

= .160

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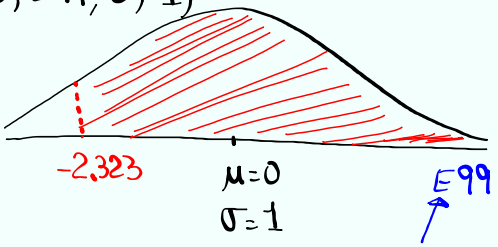
$P(Z>-2.323)$

= normalcdf(−2.323, E99, 0, 1)

= .990

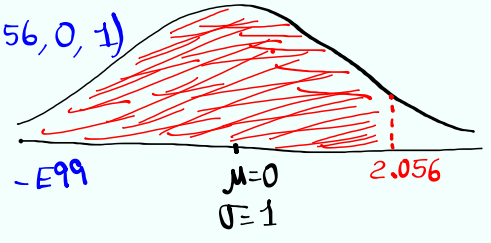


2nd , 7

$P(Z<2.056)$

= normalcdf(−E99, 2.056, 0, 1)

= .980



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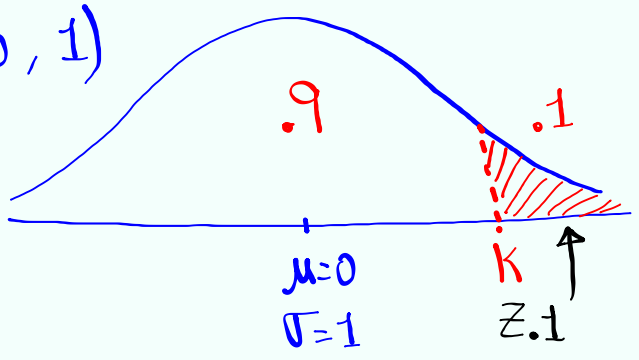
Find K such that $P(Z > K) = .1$

Right Area

$K = \text{invNorm}(.9, 0, 1)$

Left Area

$= \boxed{1.282}$



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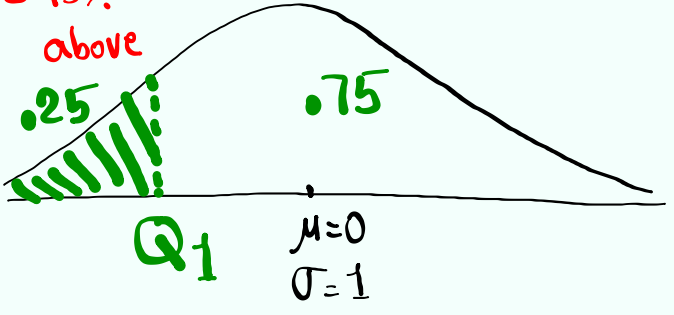
Find $Z = Q_1$

25% below
Left Area
.25

75% above
Right Area
.75



$Q_1 = \text{invNorm}(.25, 0, 1) = \boxed{-.674}$

$Q_3 = .674$ (by Symmetry)

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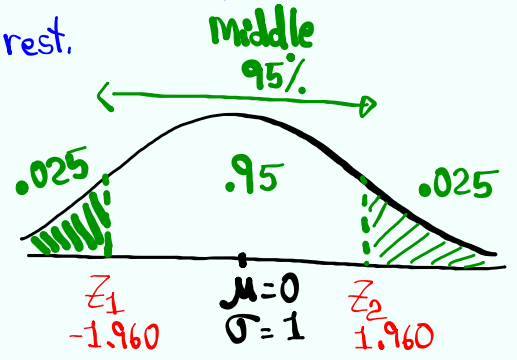
Find two z-values that separate the middle 95% from the rest.



$1 - .95 = .05$

$.05 \div 2 = .025$

$z_1 = \text{invNorm}(.025, 0, 1)$

$= \boxed{-1.960}$

$z_2 = \text{invNorm}(.975, 0, 1)$

$= \boxed{1.960}$

Sg 17

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