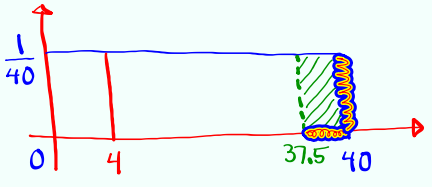
Statistics

Lecture 9

Feb 19-8:47 AM

S6.17 & S6.18

Consider a **Uniform Prob. dist.** for all values between **0 and 40.**



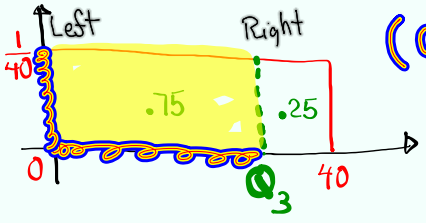
① $P(x=4) = 0$

② $P(x>37.5)$

$= (40-37.5)\cdot\frac{1}{40}$

$= 2.5 \cdot \frac{1}{40} = \frac{2.5}{40} = \boxed{\frac{1}{16}}$

③ Find $x = Q_3$. Round to whole #.



$(Q_3 - 0)\cdot\frac{1}{40} = .75$

$Q_3 - 0 = 40(.75)$

$\boxed{Q_3 = 30}$

Apr 25-8:04 AM

Standard Normal Prob. Dist.:

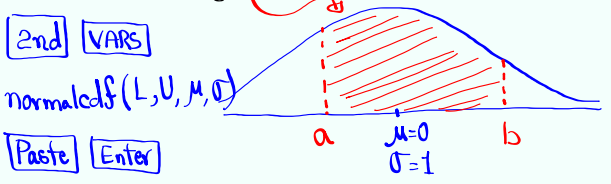
1) we use z, $P(z=c)=0$

2) Graph is symmetric, bell-shape, total area = 1.

3) Mean = Mode = Median

4) $\mu=0$, $\sigma=1$

5) $P(a<z<b)$ is the area of the corresponding region within the graph.



2nd VARS

normalcdf(L,U,μ,σ)

Paste Enter

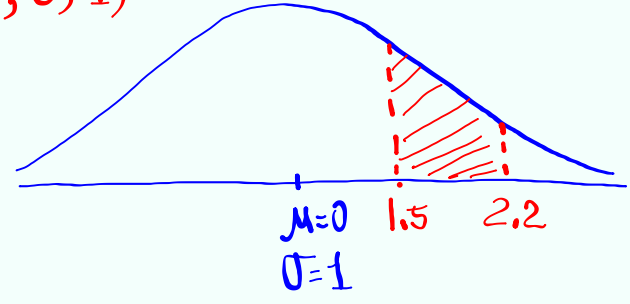
Drawing, Labeling, shading, full TI Commad required.

Apr 25-8:12 AM

Find $P(1.5<z<2.2)$

= normalcdf(1.5, 2.2, 0, 1)

= .053

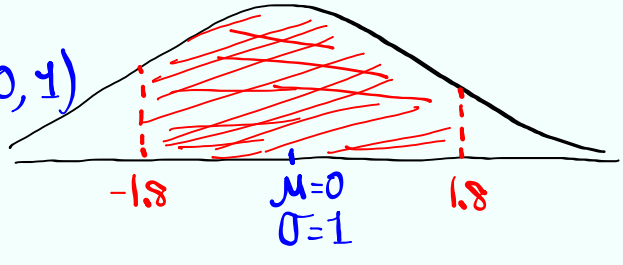


$P(-1.8<z<1.8)$

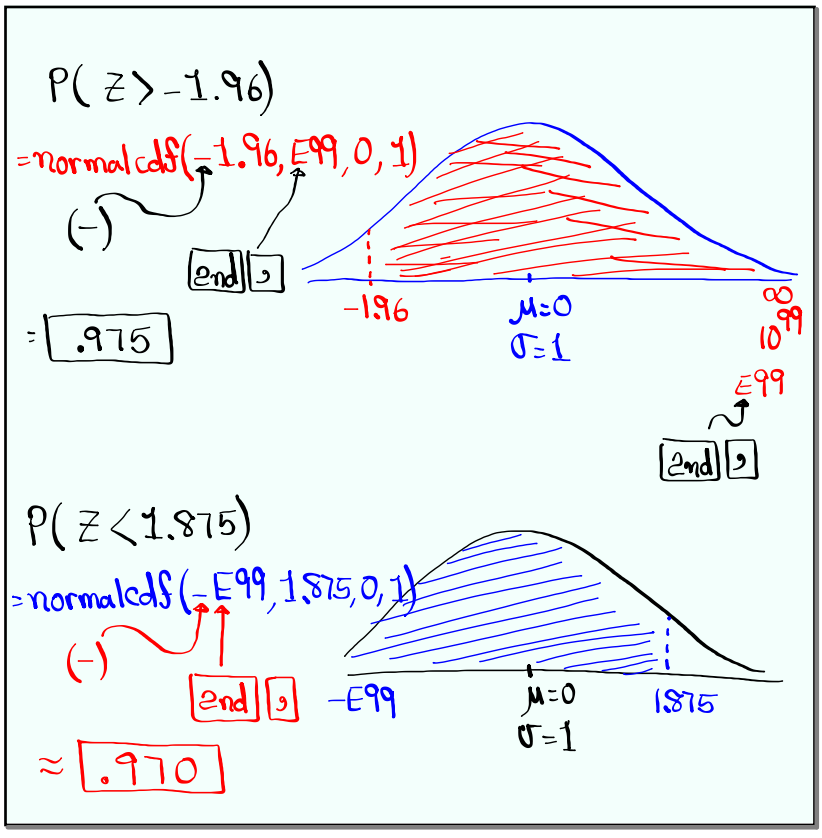
= normalcdf(−1.8, 1.8, 0, 1)

(−)

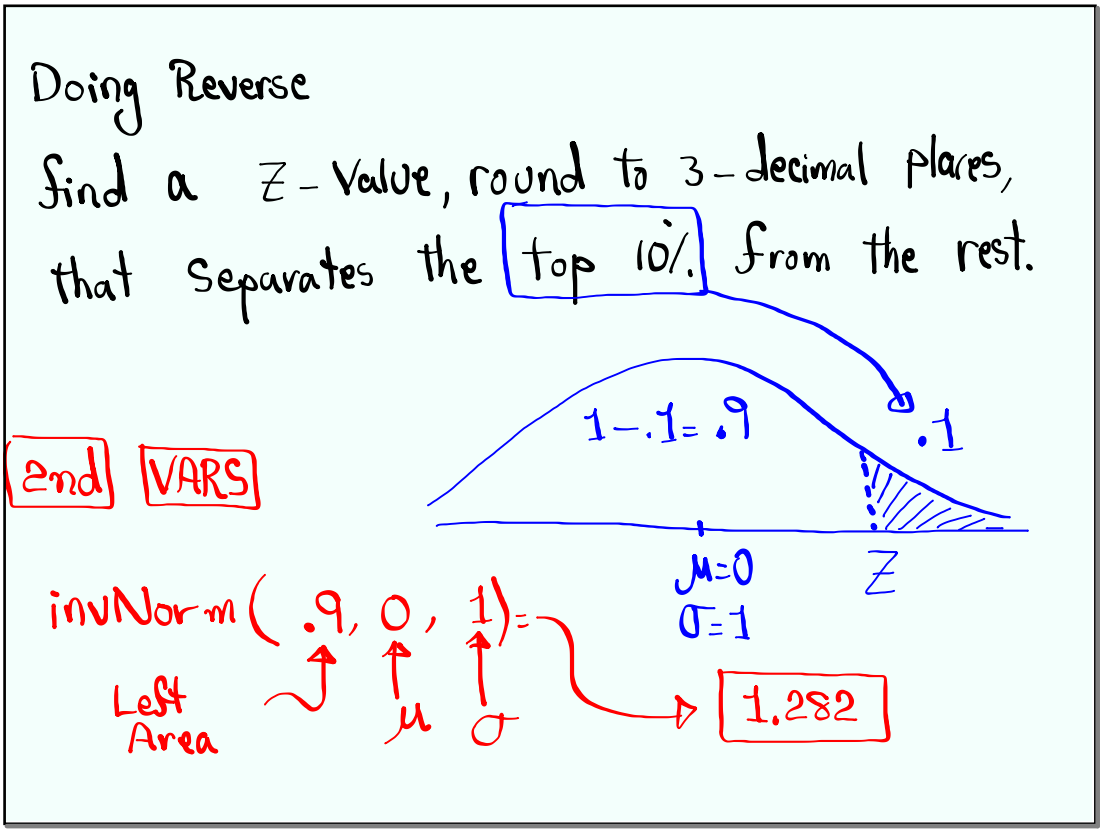
= .928



Apr 25-8:19 AM



Apr 25-8:24 AM



Apr 25-8:31 AM

Find $z = Q_1$

bottom 25%

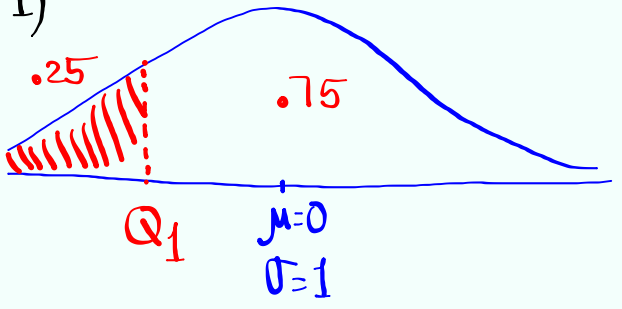
left Area .25

Top 75%

Right Area .75

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

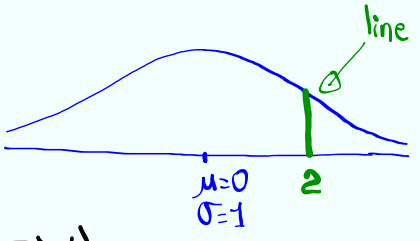
$= \boxed{-.674}$



Apr 25-8:36 AM

Find $P(z=2)$

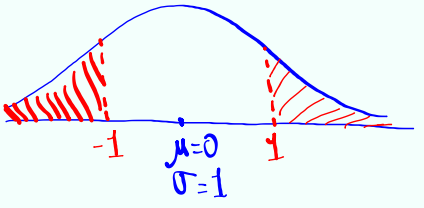
$= \boxed{0}$



Find $P(z<-1$ and $z>1)$

M.E.E.

$= \boxed{0}$

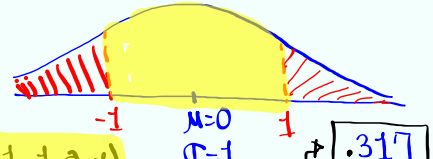


$P(z<-1$ OR $z>1)$

$= 1 - P(-1<z<1)$

Total Area

$= 1 - \text{normalcdf}(-1, 1, 0, 1) =$ .317



Apr 25-8:39 AM

Normal Prob. Dist.:

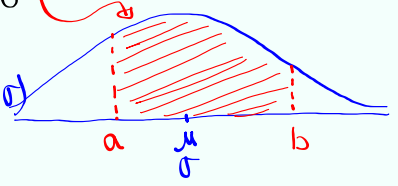
1) we use x, $P(x=c)=0$

2) Graph is symmetric, bell-shape, total area = 1.

3) Mean = Mode = Median

4) μ & σ are given in the problem.

5) $P(a<x<b)$ is the area of the corresponding region within the graph.



2nd VARS

normalcdf(L,U,μ,σ)

Paste Enter

Drawing, Labeling, Shading, full TI Commad required.

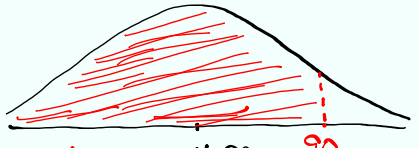
$N(\mu,\sigma)$

Apr 25-8:12 AM

Given $N(82, 6)$

Normal Prob. Dist. — μ — σ

Find $P(x<90)$

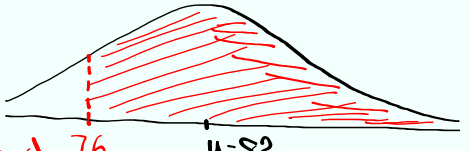


=normalcdf(−E99,90,82,6)

(−) 2nd [9]

=.909

Find $P(x>76)$



=normalcdf(76,E99,82,6)

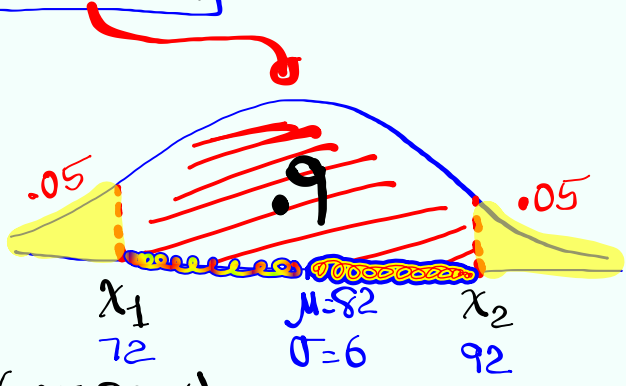
=.841

Apr 25-8:50 AM

Find two x-values, Round to whole number, that Separate the middle 90% from the rest.

$1 - .9 = .1$

$.1 \div 2 = .05$



$x_1 = P_5 = \text{invNorm}(.05, 82, 6)$

$= 72.131 \approx \boxed{72}$

$x_2 = P_{95} = \text{invNorm}(.95, 82, 6) = 91.869 \approx \boxed{92}$

Apr 25-8:57 AM

Credit Scores are normally dist. with $\mu = 750$ and $\sigma = 50$. $N(750, 50)$

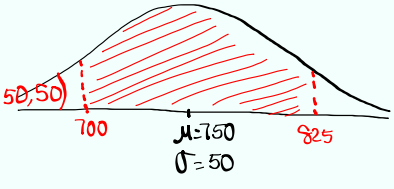
If one person is randomly Selected, x

find the prob. that his/her Credit Score is between 700 and 825.

$P(700 < x < 825)$

$= \text{normalcdf}(700, 825, 750, 50)$

$= \boxed{.775}$



Find Q_3 of Credit Scores, Round to whole #.

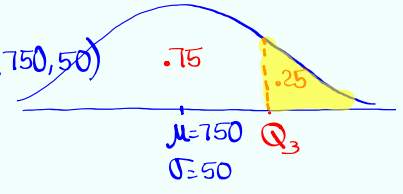
75% below

25% above

$Q_3 = \text{invNorm}(.75, 750, 50)$

$= 783.724$

$\approx \boxed{784}$



Apr 25-9:03 AM