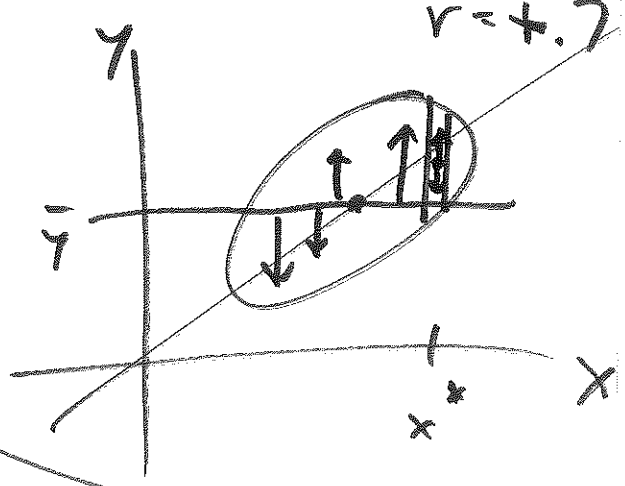
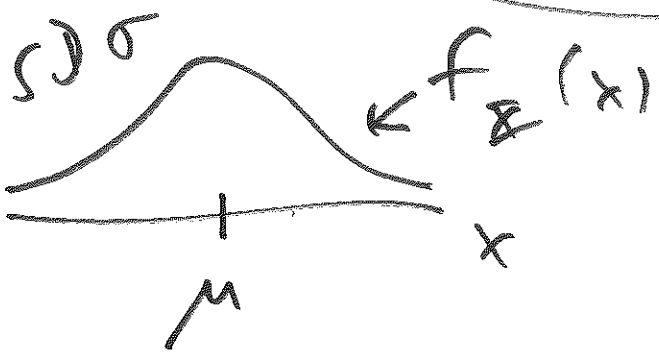
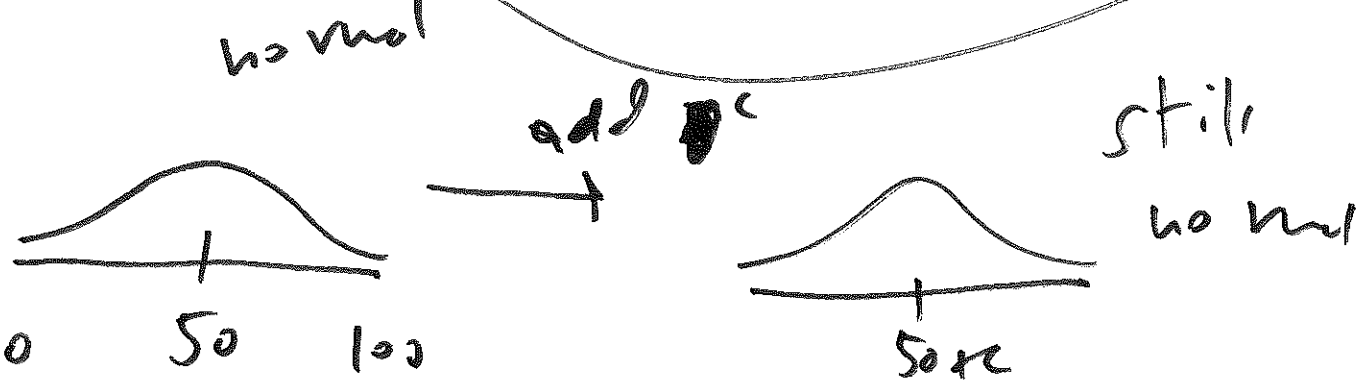
This time: conditional expectation, next time: utility, time: summary of discrete distributions; continuous dist.

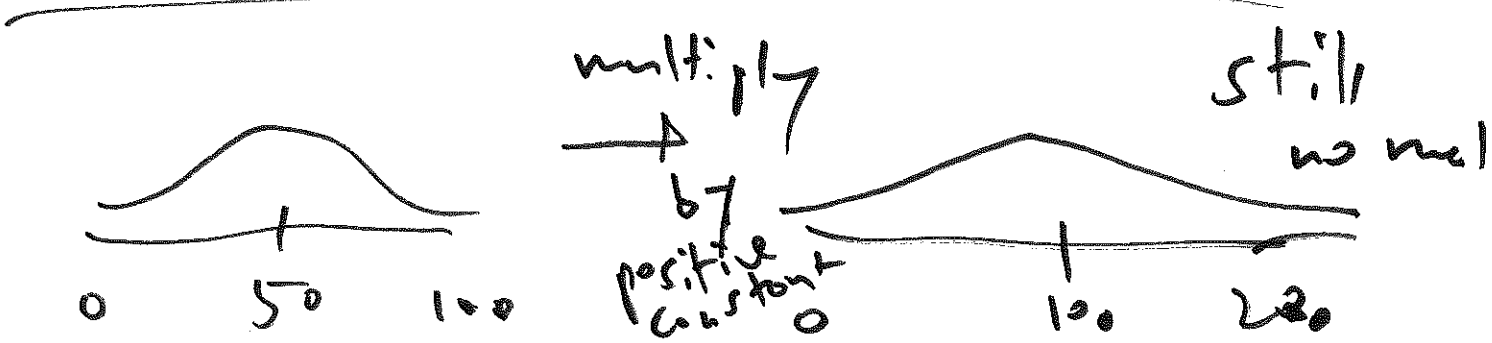
read: J Ch. 5, especially 5.6

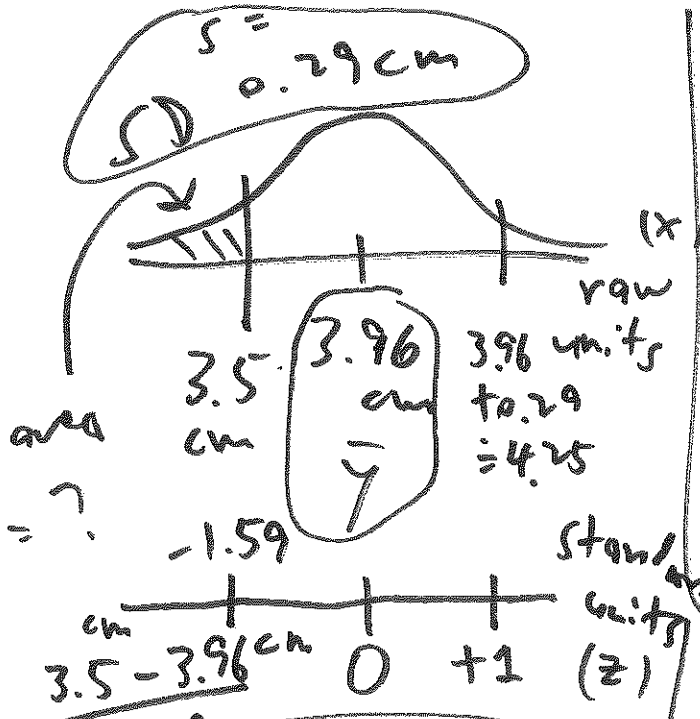


(9.53) (10.39)







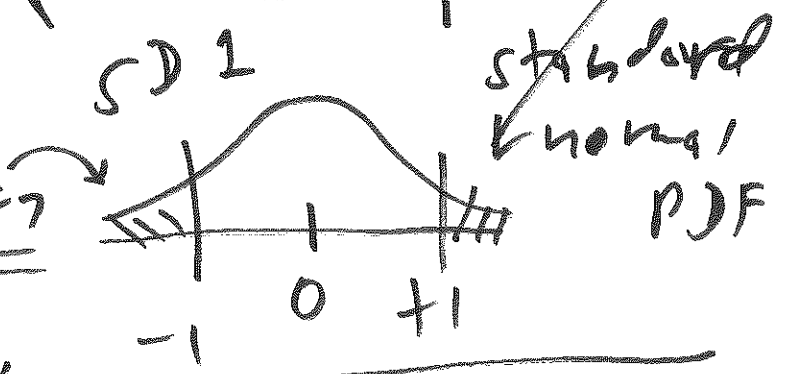


for every normal curve:

$\mu \pm 1\sigma \leftrightarrow 68\%$

$\mu \pm 2\sigma \leftrightarrow 95\%$

$\mu \pm 3\sigma \leftrightarrow 99.7\%$



$= .16$

$= 16\%$

Normal

$X \sim N(\mu, \sigma^2)$

$\downarrow$

$Z \sim N(0,1)$

$=$ pure #, without units

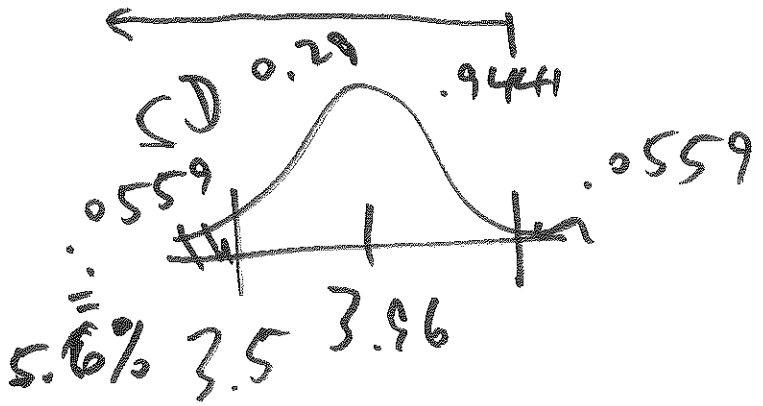
$\leftarrow$

$\frac{X - \mu}{\sigma}$ ← converting X to standard units (SU)

① integrates to 1

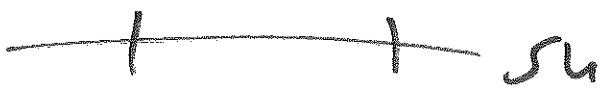
② symmetric

$\frac{3.5 - 3.96}{.29} = \frac{-0.46}{0.29} = -1.59$

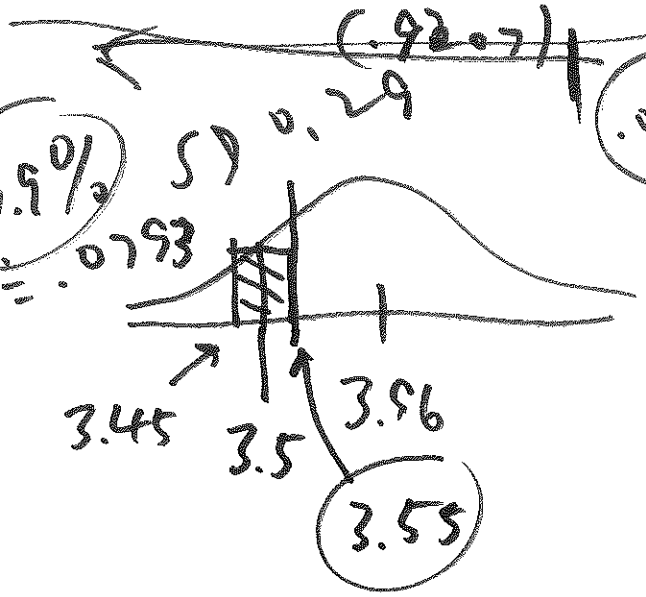


5.6%

right answer:
7.8%

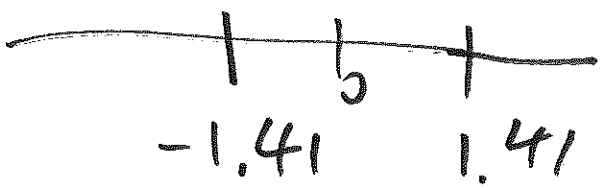


initial normal approximation
5.6%
(not good)



more refined approx

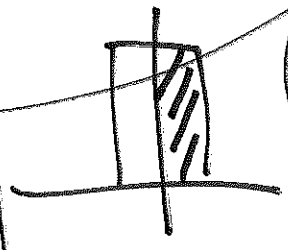
$$\frac{3.55 - 3.96}{0.29} = -1.41$$



this is the continuity correction

show that

$$\int_{-\infty}^{\infty} e^{-\frac{x^2}{2}} = \sqrt{2\pi}$$



no need to do this in THT 3

or quizzes