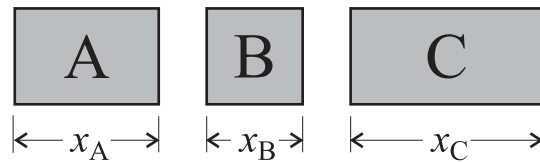


Homework #5

Chapter 3) Problems 17, 18, 20

and ...

Consider the following three part lengths (assume they're Normally distributed):



<i>Dimension</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Tolerance</i>
x_A	0.75	0.020	0.75 ± 0.05
x_B	0.51	0.015	0.50 ± 0.04
x_C	1.01	0.025	1.00 ± 0.05
Assembly ($x_A + x_B + x_C$)			2.25 ± 0.10

1. For each part (A, B, C) calculate the fraction of the population that meets the Tolerance specification.
2. Find the mean and standard deviation of the assembled dimension of a stack of parts – one taken at random from each of the A, B, and C populations.
3. If you took one part at random from each population, what is the probability that all three parts would meet their individual tolerance specification?
4. If you took one part at random from each population, what is the probability that the assembly of these three parts would meet the assembly tolerance?