Math 140
Introductory Statistics

An exercise for you

Utah's national parks

National Park	Area (sq mi)
Arches (A)	119
Bryce Canyon (B)	56
Canyonlands (C)	527
Capitol Reef (R)	378
Zion (Z)	229

Last time we created the sampling distribution for the total number of square miles in any 2 parks.

2 size sample

Sample of Two Parks	Total Area (sq mi)	Mean Area (sq mi)
A and B	175	87.5
A and C	646	323.0
A and R	497	248.5
A and Z	348	174.0
B and C	583	291.5
B and R	434	217.0
B and Z	285	142.5
C and R	905	452.5
C and Z	756	378.0
R and Z	607	303.5
	Mean	261.8

5 choose 2 possibilities =
10 combinations
Mean is 261.8
SD is 105.23

Try again for a sample of size 3

A and B and C

Total area

Mean Area from the 3 sample

How many combinations are possible?
Mean is ?
SD is ?

Do for a sample size of 4 and 5

Sample size	Combination possibilities	Mean	SD (standard error)
N=2	5 choose 2 = 10	261.8	105.23
N=3	5 choose 3 = 10	261.8	?
N=4	5 choose 4 = 5	261.8	?
N=5	5 choose 5 = 1	261.8	0

You should see the standard error decreases, as n increases

P5 page 319 Estimate the range of Utah's national parks
Range = Largest Area - Smallest Area

Select 3 parks at random and calculate the range

1) What is the range of the entire POPULATION?

2) Make a table for the range of groups of 3

3) Place your values on a dot plot

4) What is the mean of the sample?

5) Is the sample range biased or unbiased?

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Practice

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