

Homework Problem #4-11

Sample	Item 1	Item 2	Item 3	Item 4	Item 5	Sample Mean	Range
1	1.3	2.4	0.7	3	1.8		
2	2.1	1.2	1	2.5	3.6		
3	4.2	3.3	2.6	1.5	3		
4	1.6	2.1	2.8	0.9	1.5		
5	2.6	3	1.4	4.6	1.9		
6	0.8	2.7	5.8	3.7	4.5		
7	2.6	3.5	3.1	3.6	1.4		
8	3.4	6.1	1.5	2.5	2.8		
9	3.1	2.5	2.2	2.9	1.8		
10	2.4	4.8	5.9	3.2	4.4		
11	1.9	2.7	3.4	2.2	0.4		
12	6.1	4.9	2.1	3.6	5.2		
13	1.2	3.4	2.8	2.3	4.5		
14	2.4	2.9	3.4	2.3	2.5		
15	3.7	7	1.4	2.4	3.3		
16	3.6	2.7	4.8	2	1.7		
17	0.4	1.8	6.5	3.2	4.8		
18	5.3	2.9	3.4	4.8	4.4		
19	2.7	3.6	2.9	4.1	5.2		
20	4.7	2	2	3.1	1.8		

Results	X-Bar	Range
UCL		
Mean		
LCL		

N	
A2	
D3	
D4	

Sample	Sample Mean	LCL	CL	UCL	Range	LCL	CL	UCL
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Sample size, n	Mean Factor, A2	Upper Range, D4	Lower Range, D3
2	1.88	3.268	0
3	1.023	2.574	0
4	0.729	2.282	0
5	0.577	2.115	0
6	0.483	2.004	0
7	0.419	1.924	0.076
8	0.373	1.864	0.136
9	0.337	1.816	0.184
10	0.308	1.777	0.223
11	0.285	1.744	0.256
12	0.266	1.716	0.284
13	0.249	1.692	0.308
14	0.235	1.671	0.329
15	0.223	1.652	0.348
16	0.212	1.636	0.364
17	0.203	1.621	0.379
18	0.194	1.608	0.392
19	0.187	1.596	0.404
20	0.18	1.586	0.414
21	0.173	1.575	0.425
22	0.167	1.566	0.434
23	0.162	1.557	0.443
24	0.157	1.548	0.452
25	0.153	1.541	0.459