Michael Soares (MAT330) Prof. A. Dawson

Assignment 1

Problem 1

A	B	ΣAn	ΣBn	ΣAnBn	(ΣAn)2	(ΣBn)2	ΣAn2	ΣBn2	ΣAn2Bn2
16	12.0	321	104.7	33608.7	103041	10962.09	16x16 = 256	12.0x12.0=144	
22	12.1						22x22 = 484	12.1x12.1=145.2	
33	12.8						33x33 = 1089	12.8x12.8=163.84	
41	11.0						41x41 = 1681	11.0x11.0=121	
41	11.8						1681	11.8x11.8=139.24	
41	9.0						1681	9.0x9.0=81	
42	9.6						42x42 = 1764	9.6x9.6=92.16	
40	9.7						40x40 = 1600	9.7x9.7=94.09	
27	8.3						27x27 = 729	8.3x8.3=68.89	
18	8.4						18x18 = 324	8.4x8.4=70.56	
							ΣAn2 = 11289	**ΣBn2 = 1119.98**	11289 x 119.98 = 1354454.22

Mean A - 321 ÷ 10 = **32.1** ------- **Mean B** 104.7 ÷ 10 = **10.47**
Median A - 16 18 22 27 33 40 41 41 41 42 (33+30 / 2) = **16.65** ------ **Median B** - 8.3 8.4 9.0 9.6 9.7 11.0 11.8 12.0 12.1 12.8 (9.6 + 9.7 / 2) = **9.65**
Mode A = **41** ----- **Mode B** = no mode
Range A - 42 - 16 = **26** ------ **Range B** - 12.8 - 8.3 = **4.5**

Standard Deviation A $(A_n - \text{Mean})^2$

$16 - 32.1 = -(16.1)^2 = -259.21$
$22 - 32.1 = (-10.1)^2 = 102.01$
$33 - 32.1 = (.9)^2 = 0.81$
$41 - 32.1 = (8.9)^2 = 79.21$
$42 - 32.1 = (9.9)^2 = 98.01$
$40 - 32.1 = (7.9)^2 = 62.41$
$27 - 32.1 = (-5.1)^2 = 26.01$
$18 - 32.1 = (-14.1)^2 = 198.81$

Standard Deviation (Bn)

$12.0 - 10.47 = (1.53)^2 = 2.34$
$12.1 - 10.47 = (1.63)^2 = 2.67$
$12.8 - 10.47 = (2.33)^2 = 5.43$
$11.0 - 10.47 = (.53)^2 = .28$
$11.8 - 10.47 = (1.33)^2 = 1.77$
$9.0 - 10.47 = (-1.47) = 2.16$
$9.6 - 10.47 - (0.87)^2 = .76$
$9.7 - 10.47 = (-.77)^2 = 0.60$
$8.3 - 10.47 = (-2.17)^2 = 4.7089$
$8.4 - 10.47 = (-2.07)^2 = 4.2849$

Problem 3

A	B	ΣAn	ΣBn	ΣAnBn	(ΣAn)2	(ΣBn)2	ΣAn2	ΣBn2	ΣAn2Bn2
1.6	10.8	33.1	100.9	3339.79	1095.61	10180.81	1.6 x 1.6 = 2.56	10.8 x 10.8 = 116.64	
2.4	9.7						2.4 x 2.4 = 5.76	9.7 x 9.7 = 94.09	
1.8	6.1						1.8 x 1.8 = 3.24	6.1 x 6.1 = 37.21	
2.3	8.1						2.3 x 2.3 = 5.29	8.1 x 8.1 = 65.61	
1.9	8.3						1.9 x 1.9 = 3.61	8.3 x 8.3 = 68.89	
1.6	8.5						1.6 x 1.6 = 2.56	8.5 x 8.5 = 72.25	
2.0	8.5						2.0 x 2.0 = 4	8.5 x 8.5 = 72.25	
3.1	9.1						3.1 x 3.1 = 9.61	9.1 x 9.1 = 82.81	
3.8	9.1						3.8 x 3.8 = 14.44	9.1 x 9.1 = 82.81	
4.1	9.2						4.1 x 4.1 = 16.81	9.2 x 9.2 = 84.64	
4.0	7.2						4.0 x 4.0 = 16	7.2 x 7.2 = 51.84	
4.5	6.3						4.5 x 4.5 = 20.25	6.3 x 6.3 = 39.69	
							ΣAn2 =104.13	**ΣBn2 = 868.7**	104.13 x 868.7 = 90457.731

8.4

Mean A - 33.1 ÷ 12 = **2.76** (rounded) ------ **Mean B** 100.9 ÷ 12 = ~~**84.1**~~ (rounded)
Median A - 1.6 1.6 1.8 1.9 2.0 2.3 2.4 3.1 3.8 4.0 4.1 4.5 (2.3 +2.4 / 2) = **2.35** ----- **Median B** - 6.1 6.3 7.2 8.1 8.3 8.5 8.5 9.1 9.1 9.2 9.7 10.8 (8.3 + 8.5 / 2) = **8.4**
Mode A = 1.6 ------ **Mode B** = 8.5 and 9.1 (Bi-Modal)
Range A = 4.5 - 1.6 = 2.9 ------ **Range B** = 10.8 - 6.1 = 4.7

4.0 - 2.76 = (2.76)² = 7.6176
4.5 - 2.76 = (1.74)² = 3.0276

Standard Deviation

(An)

1.6 - 2.76 = (-1.16)² = 1.3456
2.4 - 2.76 = (0.36)² = 0.1296
1.8 - 2.76 = (-.96)² = 0.9216
2.3 - 2.76 = (-.46)² = 0.2116
1.9 - 2.76 = (-.86)² = 0.7396
2.0 - 2.76 = (-.76)² = 0.5776
3.1 - 2.76 = (.34)² = 0.1156
3.8 - 2.76 = (1.04)² = 1.0816
4.1 - 2.76 = (1.34)² = 1.7956

Bn

10.8 - 8.4 = (2.4)² = 5.76
9.7 - 8.4 = (1.3)² = 1.69
6.1 - 8.4 = (-2.3)² = 5.29
8.1 - 8.4 = (-0.3)² = .09
8.3 - 8.4 = (-.1)² = .01
8.5 - 8.4 = (.1)² = .01
9.1 - 8.4 = (.7)² = .49
9.2 - 8.4 = (.8)² = .64
7.2 - 8.4 = (-1.2)² = 1.44
6.3 - 8.4 = (-2.1) = -4.41

Problem 2

A	B	ΣAn	ΣBn	ΣAnBn	(ΣAn)2	(ΣBn)2	Σ*An*2	Σ*Bn*2	ΣAn2Bn2
-41	7	319	105	33495	101761	11025	41 x 41 = 1681	7 x 7 = 49	
-38	8						38 x 38 = 1444	8 x 8 = 64	
47	-10						47 x 47 = 2209	10 x 10 = 100	
48	-11						48 x 48 = 2304	11 x 11 = 121	
-22	-11						22 x 22 = 484	11 x 11 = 121	
-28	-11						28 x 28 = 784	11 x 11 = 121	
-25	-12						25 x 25 = 625	12 x 12 = 144	
-40	-13						40 x 40 = 1600	13 x 13 =169	
-30	22						30 x 30 = 900	22 x 22 = 484	
							ΣAn2 = 12031	**ΣBn2 = 1373**	12031 x 1373 = 16518563

Mean A - 319 ÷ 9 = **35.4** (rounded) ----- **Mean B** 105 ÷ 9 = **11.7** (rounded)
Median A - 22 25 28 30 *38* 40 41 47 48 = **38** ----- **Median B** - 7 8 10 11 *11* 11 12 13 22 = **11**
Mode A = no mode ---------- **Mode B** = **11**
Range A = 48 - 22 = **26** ----- **Range B** - 22 - 7 = **15**

STANDARD Deviation

An	Bn
$41-35.4=(5.6)^2=31.36$	$7-11.7=(-4.7)^2=22.09$
$38-35.4=(2.6)^2=6.76$	$8-11.7=(-3.7)^2=13.69$
$47-35.4=(11.6)^2=134.56$	$10-11.7=(-1.7)^2=2.89$
$48-35.4=(12.6)^2=158.76$	$11-11.7=(-.7)^2=.49$
$22-35.4=(-13.4)^2=179.56$	$12-11.7=(.3)^2=.09$
$28-35.4=(-7.4)^2=54.76$	$13-11.7=(1.3)^2=1.7$
$25-35.4=(-10.4)^2=108.16$	$22-11.7=(10.3)^2=106.09$
$40-35.4=(4.6)^2=21.16$	
$30-35.4=(-5.4)^2=29.16$	

Stem and leaf Plot

Problem 1

An

Stem	Leaf
1	6 8
2	2 7
3	3
4	0 1 1 1 2

Bn

Stem	Leaf
8	3 4
9	0 7 6
11	0 8
12	0 1 8

Problem 2

An

Stem	Leaf
2	2 5 8
3	0 8
4	0 1 8 7

Bn

Stem	Leaf
7	
8	
1	0 1 1 1 2 3
2	2

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Problem 3

An

Stem	Leaf
1	6 6 8 9
2	0 3 4
3	1 8
4	0 1 5

Bn

Stem	Leaf
6	1 3
7	2
8	1 3 5 5
9	1 1 2 7
10	8