

어드벤처디자인:빅데이터기초분석과정보활용 4주차 실습과제

20173204 곽명빈

```
df <- data.frame(v1 = c(1, 2, 3, 4, 5),  
                 v2 = c(1, 2.5, 3, 3.5, 5))
```

```
df  
str(df)
```

```
head(df, 3)
```

```
df$v1
```

```
df$v2
```

```
x <- df$v1
```

```
y <- df$v2
```

```
x_bar <- mean(x)
```

```
x_n <- length(x)
```

```
x - x_bar
```

```
(x - x_bar)^2
```

```
s_x_2 <- sum((x - x_bar)^2 / (x_n - 1))
```

```
s_x_2
```

```
y_bar <- mean(y)
```

```
y_n <- length(y)
```

```
y - y_bar
```

```
(y - y_bar)^2
```

```
s_y_2 <- sum((y - y_bar)^2 / (y_n - 1))
```

```
(x-x_bar)*(y-y_bar)
```

```
s_xy_2 <- sum((x-x_bar)*(y-y_bar)) / 4
```

```
s_xy_2
```

```
sqrt(s_x_2)
```

```
sqrt(s_y_2)
```

```
r <- s_xy_2 / (sqrt(s_x_2)*sqrt(s_y_2))
```

```
r
```

```
var(x)
```

```
var(y)
```

```
cov(x, y)
```

```
cor(x, y)
```

```
plot(x, y)
```

```
plot(x, y, col="red")
```

```
plot(x, y, col="red", pch=19)
```

```
plot(x, y, col="red", pch=19, cex=1.5)
```

```
plot(x, y, col="red", pch=19, cex=1.5, main="x와 y의 산점도")
```

```
data()
```

```
ChickWeight
```

```
data(ChickWeight)
```

```
ChickWeight
```

```
?ChickWeight
```

```

> df <- data.frame(v1 = c(1, 2, 3, 4, 5),
+                  v2 = c(1, 2.5, 3, 3.5, 5))
>
> df
  v1 v2
1  1 1.0
2  2 2.5
3  3 3.0
4  4 3.5
5  5 5.0
> str(df)
'data.frame':   5 obs. of  2 variables:
 $ v1: num  1 2 3 4 5
 $ v2: num  1 2.5 3 3.5 5
>
> head(df, 3)
  v1 v2
1  1 1.0
2  2 2.5
3  3 3.0
>
> df$v1
[1] 1 2 3 4 5
>
> df$v2
[1] 1.0 2.5 3.0 3.5 5.0
>
> x <- df$v1
>
> y <- df$v2
>
> x_bar <- mean(x)
>
> x_n <- length(x)
>
> x - x_bar
[1] -2 -1  0  1  2
>
> (x - x_bar)^2

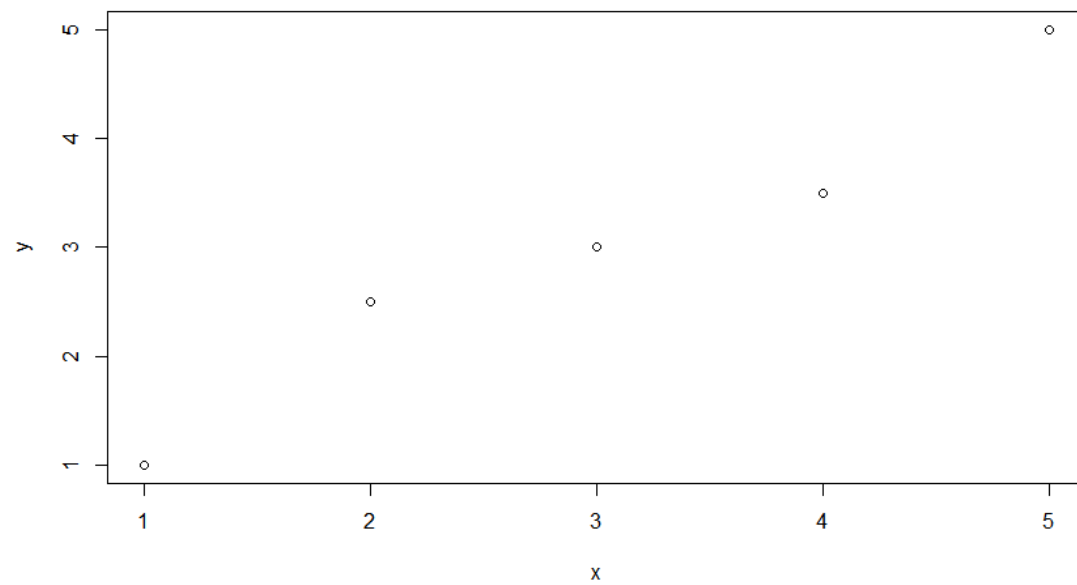
```

```

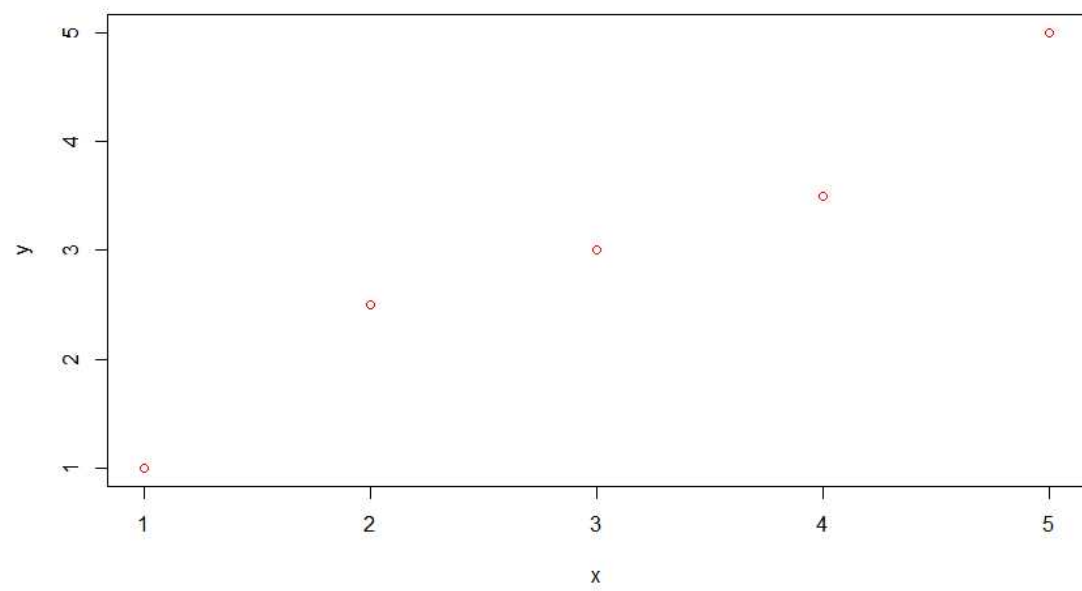
[1] 4 1 0 1 4
>
> s_x_2 <- sum((x - x_bar)^2 / (x_n - 1))
>
> s_x_2
[1] 2.5
>
> y_bar <- mean(y)
>
> y_n <- length(y)
>
> y - y_bar
[1] -2.0 -0.5  0.0  0.5  2.0
>
> (y - y_bar)^2
[1] 4.00 0.25 0.00 0.25 4.00
>
> s_y_2 <- sum((y - y_bar)^2 / (y_n - 1))
>
> (x-x_bar)*(y-y_bar)
[1] 4.0 0.5 0.0 0.5 4.0
>
> s_xy_2 <- sum((x-x_bar)*(y-y_bar)) / 4
>
> s_xy_2
[1] 2.25
>
> sqrt(s_x_2)
[1] 1.581139
>
> sqrt(s_y_2)
[1] 1.457738
>
> r <- s_xy_2 / (sqrt(s_x_2)*sqrt(s_y_2))
>
> r
[1] 0.9761871
>
> var(x)
[1] 2.5
>

```

```
> var(y)
[1] 2.125
>
> cov(x, y)
[1] 2.25
>
> cor(x, y)
[1] 0.9761871
>
> plot(x, y)
```

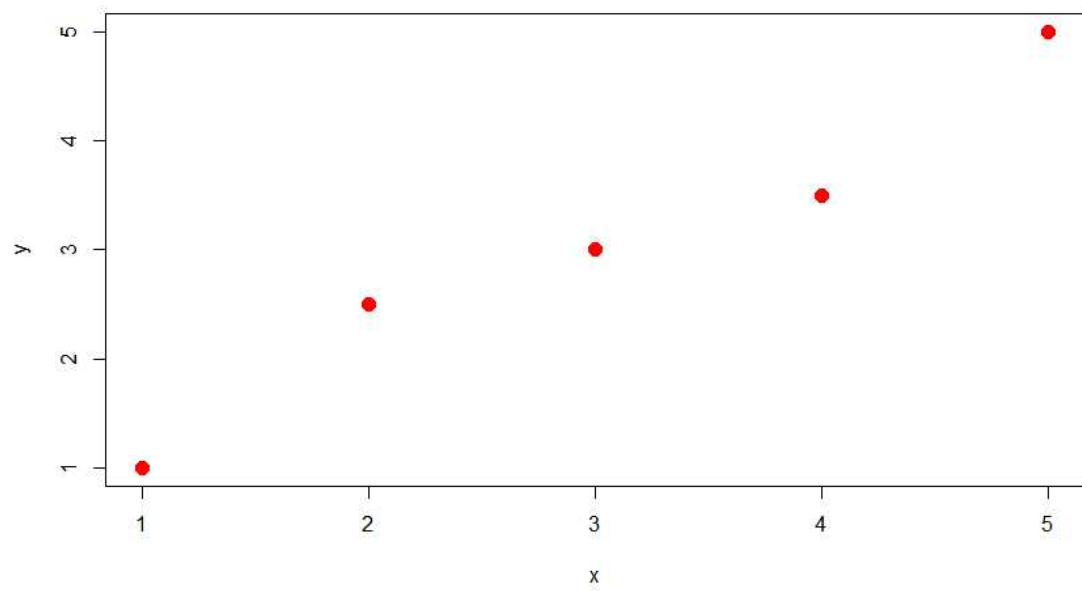


```
>
> plot(x, y, col="red")
```



>

```
> plot(x, y, col="red", pch=19)
```



>

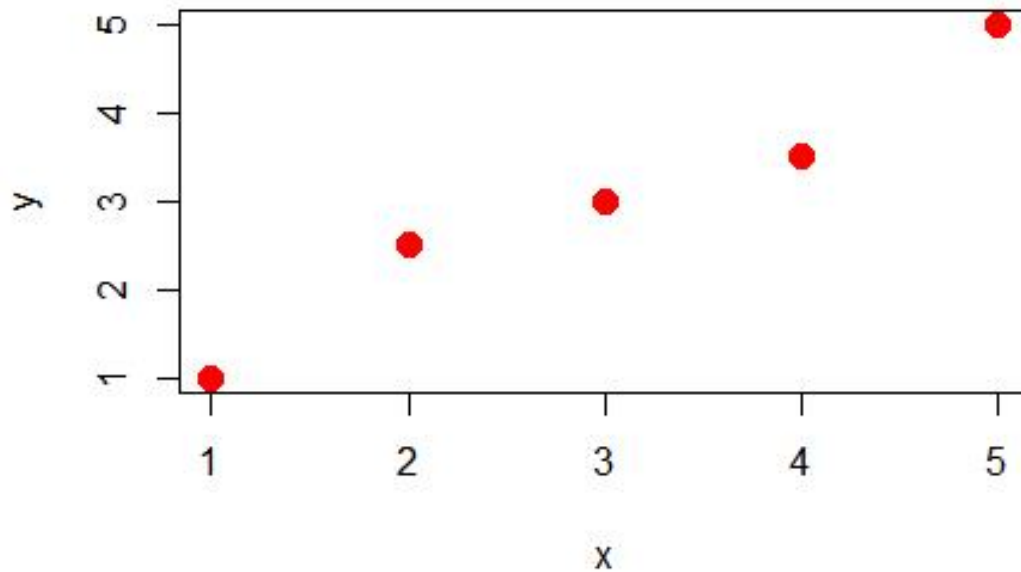
```
> plot(x, y, col="red", pch=19, cex=1.5)
```

>

```
> plot(x, y, col="red", pch=19, cex=1.5, main="x와 y의 산점도")
```

Environment History Connections		
Global Environment		
Data		
Chickweight	578 obs. of 4 variables	
df	5 obs. of 2 variables	
values		
r	0.976187060183953	
s_x_2	2.5	
s_xy_2	2.25	
s_y_2	2.125	
x	num [1:5] 1 2 3 4 5	
x_bar	3	
x_n	5L	
y	num [1:5] 1 2.5 3 3.5 5	
y_bar	3	
y_n	5L	

x와 y의 산점도



Environment History Connections		
Global Environment		
Data		
Chickweight	578 obs. of 4 variables	
df	5 obs. of 2 variables	
values		
r	0.976187060183953	
s_x_2	2.5	
s_xy_2	2.25	
s_y_2	2.125	
x	num [1:5] 1 2 3 4 5	
x_bar	3	
x_n	5L	
y	num [1:5] 1 2.5 3 3.5 5	
y_bar	3	
y_n	5L	

> data()

> ChickWeight

	weight	Time	Chick	Diet
1	42	0	1	1
2	51	2	1	1
3	59	4	1	1
4	64	6	1	1
5	76	8	1	1
6	93	10	1	1
7	106	12	1	1
8	125	14	1	1
9	149	16	1	1
10	171	18	1	1
11	199	20	1	1
12	205	21	1	1
13	40	0	2	1
14	49	2	2	1
15	58	4	2	1
16	72	6	2	1
17	84	8	2	1
18	103	10	2	1
19	122	12	2	1
20	138	14	2	1
21	162	16	2	1
22	187	18	2	1
23	209	20	2	1
24	215	21	2	1
25	43	0	3	1
26	39	2	3	1
27	55	4	3	1
28	67	6	3	1
29	84	8	3	1
30	99	10	3	1
31	115	12	3	1
32	138	14	3	1
33	163	16	3	1
34	187	18	3	1
35	198	20	3	1
36	202	21	3	1
37	42	0	4	1
38	49	2	4	1
39	56	4	4	1

40	67	6	4	1
41	74	8	4	1
42	87	10	4	1
43	102	12	4	1
44	108	14	4	1
45	136	16	4	1
46	154	18	4	1
47	160	20	4	1
48	157	21	4	1
49	41	0	5	1
50	42	2	5	1
51	48	4	5	1
52	60	6	5	1
53	79	8	5	1
54	106	10	5	1
55	141	12	5	1
56	164	14	5	1
57	197	16	5	1
58	199	18	5	1
59	220	20	5	1
60	223	21	5	1
61	41	0	6	1
62	49	2	6	1
63	59	4	6	1
64	74	6	6	1
65	97	8	6	1
66	124	10	6	1
67	141	12	6	1
68	148	14	6	1
69	155	16	6	1
70	160	18	6	1
71	160	20	6	1
72	157	21	6	1
73	41	0	7	1
74	49	2	7	1
75	57	4	7	1
76	71	6	7	1
77	89	8	7	1
78	112	10	7	1
79	146	12	7	1
80	174	14	7	1

81	218	16	7	1
82	250	18	7	1
83	288	20	7	1
84	305	21	7	1
85	42	0	8	1
86	50	2	8	1
87	61	4	8	1
88	71	6	8	1
89	84	8	8	1
90	93	10	8	1
91	110	12	8	1
92	116	14	8	1
93	126	16	8	1
94	134	18	8	1
95	125	20	8	1
96	42	0	9	1
97	51	2	9	1
98	59	4	9	1
99	68	6	9	1
100	85	8	9	1
101	96	10	9	1
102	90	12	9	1
103	92	14	9	1
104	93	16	9	1
105	100	18	9	1
106	100	20	9	1
107	98	21	9	1
108	41	0	10	1
109	44	2	10	1
110	52	4	10	1
111	63	6	10	1
112	74	8	10	1
113	81	10	10	1
114	89	12	10	1
115	96	14	10	1
116	101	16	10	1
117	112	18	10	1
118	120	20	10	1
119	124	21	10	1
120	43	0	11	1
121	51	2	11	1

122	63	4	11	1
123	84	6	11	1
124	112	8	11	1
125	139	10	11	1
126	168	12	11	1
127	177	14	11	1
128	182	16	11	1
129	184	18	11	1
130	181	20	11	1
131	175	21	11	1
132	41	0	12	1
133	49	2	12	1
134	56	4	12	1
135	62	6	12	1
136	72	8	12	1
137	88	10	12	1
138	119	12	12	1
139	135	14	12	1
140	162	16	12	1
141	185	18	12	1
142	195	20	12	1
143	205	21	12	1
144	41	0	13	1
145	48	2	13	1
146	53	4	13	1
147	60	6	13	1
148	65	8	13	1
149	67	10	13	1
150	71	12	13	1
151	70	14	13	1
152	71	16	13	1
153	81	18	13	1
154	91	20	13	1
155	96	21	13	1
156	41	0	14	1
157	49	2	14	1
158	62	4	14	1
159	79	6	14	1
160	101	8	14	1
161	128	10	14	1
162	164	12	14	1

163	192	14	14	1
164	227	16	14	1
165	248	18	14	1
166	259	20	14	1
167	266	21	14	1
168	41	0	15	1
169	49	2	15	1
170	56	4	15	1
171	64	6	15	1
172	68	8	15	1
173	68	10	15	1
174	67	12	15	1
175	68	14	15	1
176	41	0	16	1
177	45	2	16	1
178	49	4	16	1
179	51	6	16	1
180	57	8	16	1
181	51	10	16	1
182	54	12	16	1
183	42	0	17	1
184	51	2	17	1
185	61	4	17	1
186	72	6	17	1
187	83	8	17	1
188	89	10	17	1
189	98	12	17	1
190	103	14	17	1
191	113	16	17	1
192	123	18	17	1
193	133	20	17	1
194	142	21	17	1
195	39	0	18	1
196	35	2	18	1
197	43	0	19	1
198	48	2	19	1
199	55	4	19	1
200	62	6	19	1
201	65	8	19	1
202	71	10	19	1
203	82	12	19	1

204	88	14	19	1
205	106	16	19	1
206	120	18	19	1
207	144	20	19	1
208	157	21	19	1
209	41	0	20	1
210	47	2	20	1
211	54	4	20	1
212	58	6	20	1
213	65	8	20	1
214	73	10	20	1
215	77	12	20	1
216	89	14	20	1
217	98	16	20	1
218	107	18	20	1
219	115	20	20	1
220	117	21	20	1
221	40	0	21	2
222	50	2	21	2
223	62	4	21	2
224	86	6	21	2
225	125	8	21	2
226	163	10	21	2
227	217	12	21	2
228	240	14	21	2
229	275	16	21	2
230	307	18	21	2
231	318	20	21	2
232	331	21	21	2
233	41	0	22	2
234	55	2	22	2
235	64	4	22	2
236	77	6	22	2
237	90	8	22	2
238	95	10	22	2
239	108	12	22	2
240	111	14	22	2
241	131	16	22	2
242	148	18	22	2
243	164	20	22	2
244	167	21	22	2

245	43	0	23	2
246	52	2	23	2
247	61	4	23	2
248	73	6	23	2
249	90	8	23	2
250	103	10	23	2

[reached 'max' / getOption("max.print") -- omitted 328 rows]

> data(ChickWeight)

> ChickWeight

	weight	Time	Chick	Diet
1	42	0	1	1
2	51	2	1	1
3	59	4	1	1
4	64	6	1	1
5	76	8	1	1
6	93	10	1	1
7	106	12	1	1
8	125	14	1	1
9	149	16	1	1
10	171	18	1	1
11	199	20	1	1
12	205	21	1	1
13	40	0	2	1
14	49	2	2	1
15	58	4	2	1
16	72	6	2	1
17	84	8	2	1
18	103	10	2	1
19	122	12	2	1
20	138	14	2	1
21	162	16	2	1
22	187	18	2	1
23	209	20	2	1
24	215	21	2	1
25	43	0	3	1
26	39	2	3	1
27	55	4	3	1
28	67	6	3	1
29	84	8	3	1
30	99	10	3	1
31	115	12	3	1

32	138	14	3	1
33	163	16	3	1
34	187	18	3	1
35	198	20	3	1
36	202	21	3	1
37	42	0	4	1
38	49	2	4	1
39	56	4	4	1
40	67	6	4	1
41	74	8	4	1
42	87	10	4	1
43	102	12	4	1
44	108	14	4	1
45	136	16	4	1
46	154	18	4	1
47	160	20	4	1
48	157	21	4	1
49	41	0	5	1
50	42	2	5	1
51	48	4	5	1
52	60	6	5	1
53	79	8	5	1
54	106	10	5	1
55	141	12	5	1
56	164	14	5	1
57	197	16	5	1
58	199	18	5	1
59	220	20	5	1
60	223	21	5	1
61	41	0	6	1
62	49	2	6	1
63	59	4	6	1
64	74	6	6	1
65	97	8	6	1
66	124	10	6	1
67	141	12	6	1
68	148	14	6	1
69	155	16	6	1
70	160	18	6	1
71	160	20	6	1
72	157	21	6	1

73	41	0	7	1
74	49	2	7	1
75	57	4	7	1
76	71	6	7	1
77	89	8	7	1
78	112	10	7	1
79	146	12	7	1
80	174	14	7	1
81	218	16	7	1
82	250	18	7	1
83	288	20	7	1
84	305	21	7	1
85	42	0	8	1
86	50	2	8	1
87	61	4	8	1
88	71	6	8	1
89	84	8	8	1
90	93	10	8	1
91	110	12	8	1
92	116	14	8	1
93	126	16	8	1
94	134	18	8	1
95	125	20	8	1
96	42	0	9	1
97	51	2	9	1
98	59	4	9	1
99	68	6	9	1
100	85	8	9	1
101	96	10	9	1
102	90	12	9	1
103	92	14	9	1
104	93	16	9	1
105	100	18	9	1
106	100	20	9	1
107	98	21	9	1
108	41	0	10	1
109	44	2	10	1
110	52	4	10	1
111	63	6	10	1
112	74	8	10	1
113	81	10	10	1

114	89	12	10	1
115	96	14	10	1
116	101	16	10	1
117	112	18	10	1
118	120	20	10	1
119	124	21	10	1
120	43	0	11	1
121	51	2	11	1
122	63	4	11	1
123	84	6	11	1
124	112	8	11	1
125	139	10	11	1
126	168	12	11	1
127	177	14	11	1
128	182	16	11	1
129	184	18	11	1
130	181	20	11	1
131	175	21	11	1
132	41	0	12	1
133	49	2	12	1
134	56	4	12	1
135	62	6	12	1
136	72	8	12	1
137	88	10	12	1
138	119	12	12	1
139	135	14	12	1
140	162	16	12	1
141	185	18	12	1
142	195	20	12	1
143	205	21	12	1
144	41	0	13	1
145	48	2	13	1
146	53	4	13	1
147	60	6	13	1
148	65	8	13	1
149	67	10	13	1
150	71	12	13	1
151	70	14	13	1
152	71	16	13	1
153	81	18	13	1
154	91	20	13	1

155	96	21	13	1
156	41	0	14	1
157	49	2	14	1
158	62	4	14	1
159	79	6	14	1
160	101	8	14	1
161	128	10	14	1
162	164	12	14	1
163	192	14	14	1
164	227	16	14	1
165	248	18	14	1
166	259	20	14	1
167	266	21	14	1
168	41	0	15	1
169	49	2	15	1
170	56	4	15	1
171	64	6	15	1
172	68	8	15	1
173	68	10	15	1
174	67	12	15	1
175	68	14	15	1
176	41	0	16	1
177	45	2	16	1
178	49	4	16	1
179	51	6	16	1
180	57	8	16	1
181	51	10	16	1
182	54	12	16	1
183	42	0	17	1
184	51	2	17	1
185	61	4	17	1
186	72	6	17	1
187	83	8	17	1
188	89	10	17	1
189	98	12	17	1
190	103	14	17	1
191	113	16	17	1
192	123	18	17	1
193	133	20	17	1
194	142	21	17	1
195	39	0	18	1

196	35	2	18	1
197	43	0	19	1
198	48	2	19	1
199	55	4	19	1
200	62	6	19	1
201	65	8	19	1
202	71	10	19	1
203	82	12	19	1
204	88	14	19	1
205	106	16	19	1
206	120	18	19	1
207	144	20	19	1
208	157	21	19	1
209	41	0	20	1
210	47	2	20	1
211	54	4	20	1
212	58	6	20	1
213	65	8	20	1
214	73	10	20	1
215	77	12	20	1
216	89	14	20	1
217	98	16	20	1
218	107	18	20	1
219	115	20	20	1
220	117	21	20	1
221	40	0	21	2
222	50	2	21	2
223	62	4	21	2
224	86	6	21	2
225	125	8	21	2
226	163	10	21	2
227	217	12	21	2
228	240	14	21	2
229	275	16	21	2
230	307	18	21	2
231	318	20	21	2
232	331	21	21	2
233	41	0	22	2
234	55	2	22	2
235	64	4	22	2
236	77	6	22	2

237	90	8	22	2
238	95	10	22	2
239	108	12	22	2
240	111	14	22	2
241	131	16	22	2
242	148	18	22	2
243	164	20	22	2
244	167	21	22	2
245	43	0	23	2
246	52	2	23	2
247	61	4	23	2
248	73	6	23	2
249	90	8	23	2
250	103	10	23	2

[reached 'max' / getOption("max.print") -- omitted 328 rows]

> [?ChickWeight](#)

>