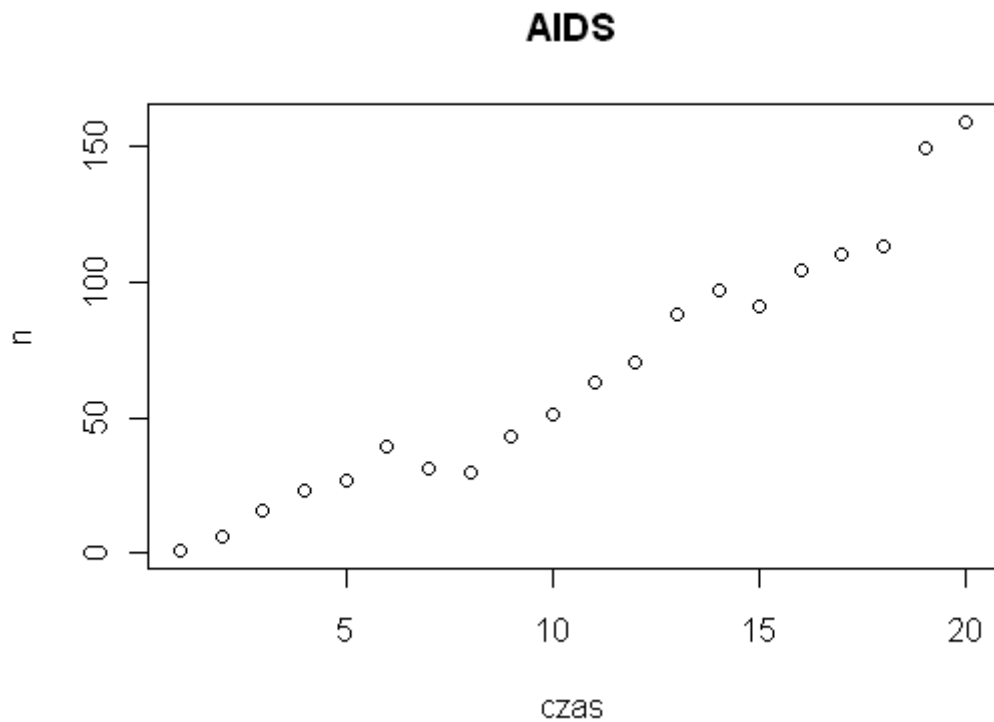


```
> aids <- read.csv2("aids.csv",header=T)
> attach(aids)
> plot(1:20,n,main="AIDS",xlab="czas")
```



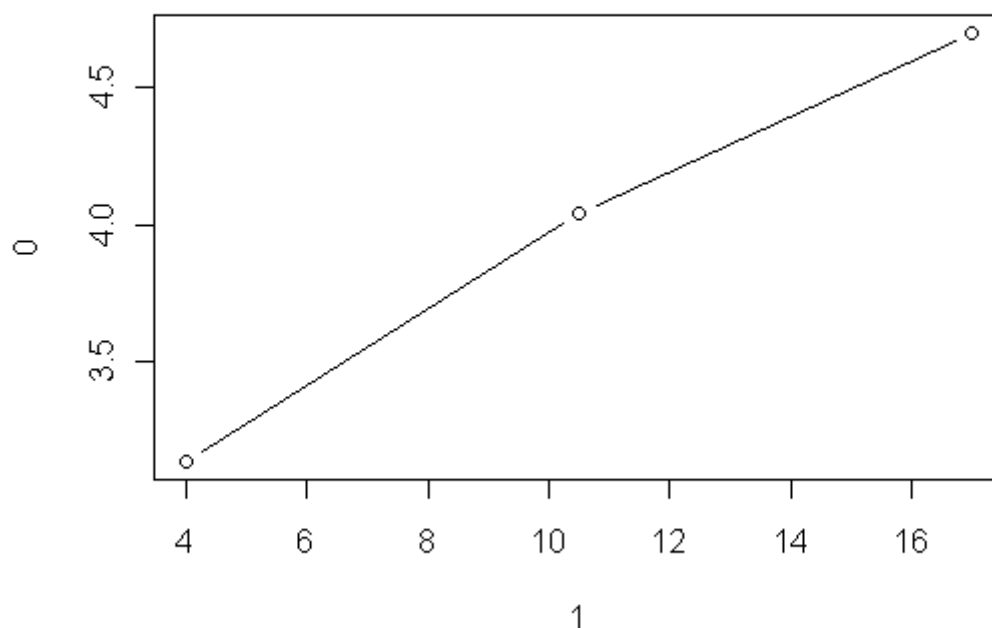
```
> strzałkaTukeya(1:20,n,prog=0.2)
```

```
potęga x = 1 potęga y = 1
błąd = -0.2183908 b1 = 5.230769 b2 = 8.153846
```

```
potęga (x/y),koniec - ESC
wybierz x,y,ESC: y
```

```
potęga x = 1 potęga y = 0
błąd = 0.1598276 b1 = 0.1396242 b2 = 0.1011429
```

```
PRZYBLIŻONE RÓWNANIE REGRESJI: a = 2.65396 b = 0.1203835
```



\*

```
> czas <- 1:20
> aids.1 <- glm(n~czas,family=poisson)
> summary(aids.1)
```

```
Call:
glm(formula = n ~ czas, family = poisson)
```

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-4.7046  -0.7978   0.1218   0.6849   2.1217
```

```
Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  2.562599   0.084862   30.20  <2e-16 ***
czas         0.129208   0.005579   23.16  <2e-16 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(Dispersion parameter for poisson family taken to be 1)
```

```
Null deviance: 677.26 on 19 degrees of freedom
Residual deviance: 53.02 on 18 degrees of freedom
AIC: 169.32
```

```
Number of Fisher Scoring iterations: 4
```

```
> aids.4 <-glm(n~rok*fkward, family=poisson)
> summary(aids.4)
```

Call:

```
glm(formula = n ~ rok * fkward, family = poisson)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-4.0853	-0.8907	0.0141	1.1108	2.0533

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	-1.175e+03	1.051e+02	-11.179	<2e-16	***
rok	5.936e-01	5.291e-02	11.219	<2e-16	***
fkward2	2.085e+02	1.402e+02	1.487	0.137	
fkward3	1.514e+02	1.372e+02	1.104	0.270	
fkward4	1.988e+02	1.338e+02	1.485	0.137	
rok:fkward2	-1.048e-01	7.055e-02	-1.486	0.137	
rok:fkward3	-7.605e-02	6.903e-02	-1.102	0.271	
rok:fkward4	-9.985e-02	6.735e-02	-1.483	0.138	

---  
Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for poisson family taken to be 1)

Null deviance: 677.264 on 19 degrees of freedom  
Residual deviance: 49.962 on 12 degrees of freedom  
AIC: 178.26

Number of Fisher Scoring iterations: 5

```
> aids.5 <-glm(n~rok, family=poisson)
> summary(aids.5)
```

Call:

```
glm(formula = n ~ rok, family = poisson)
```

Deviance Residuals:

Min	1Q	Median	3Q	Max
-5.3140	-0.7329	0.2111	1.2475	2.5450

Coefficients:

	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	-1.026e+03	4.555e+01	-22.52	<2e-16	***
rok	5.186e-01	2.292e-02	22.62	<2e-16	***

---  
Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for poisson family taken to be 1)

Null deviance: 677.264 on 19 degrees of freedom  
Residual deviance: 76.757 on 18 degrees of freedom  
AIC: 193.06

Number of Fisher Scoring iterations: 4

```
> anova(aids.4,aids.5)
Analysis of Deviance Table
```

Model	1:	n ~ rok * fkward	
Model 2:	n ~ rok		
Resid. Df	Resid. Dev	Df	Deviance
1	12	49.962	
2	18	76.757	-6 -26.795

```
> 1-pchisq(26.795,6)
```

```
[1] 0.0001581881
```

```
> aids.41 <- step(aids.4)
```

```
Start: AIC=178.26  
n ~ rok * fkwart
```

	Df	Deviance	AIC
- rok:fkwart	3	52.791	175.09
<none>		49.962	178.26

```
Step: AIC=175.09
```

```
n ~ rok + fkwart
```

	Df	Deviance	AIC
<none>		52.79	175.09
- fkwart	3	76.76	193.06
- rok	1	653.30	773.60

```
> summary(aids.41)
```

```
Call:
```

```
glm(formula = n ~ rok + fkwart, family = poisson)
```

```
Deviance Residuals:
```

Min	1Q	Median	3Q	Max
-4.7092	-0.7603	0.0930	0.6724	2.0625

```
Coefficients:
```

	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	-1.026e+03	4.555e+01	-22.530	< 2e-16	***
rok	5.186e-01	2.292e-02	22.622	< 2e-16	***
fkwart2	1.289e-01	8.358e-02	1.542	0.12309	
fkwart3	2.632e-01	8.108e-02	3.246	0.00117	**
fkwart4	3.611e-01	7.942e-02	4.547	5.45e-06	***

```
---  
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(Dispersion parameter for poisson family taken to be 1)
```

```
Null deviance: 677.264 on 19 degrees of freedom  
Residual deviance: 52.791 on 15 degrees of freedom  
AIC: 175.09
```

```
Number of Fisher Scoring iterations: 4
```

```
> anova(aids.4,aids.41)
```

```
Analysis of Deviance Table
```

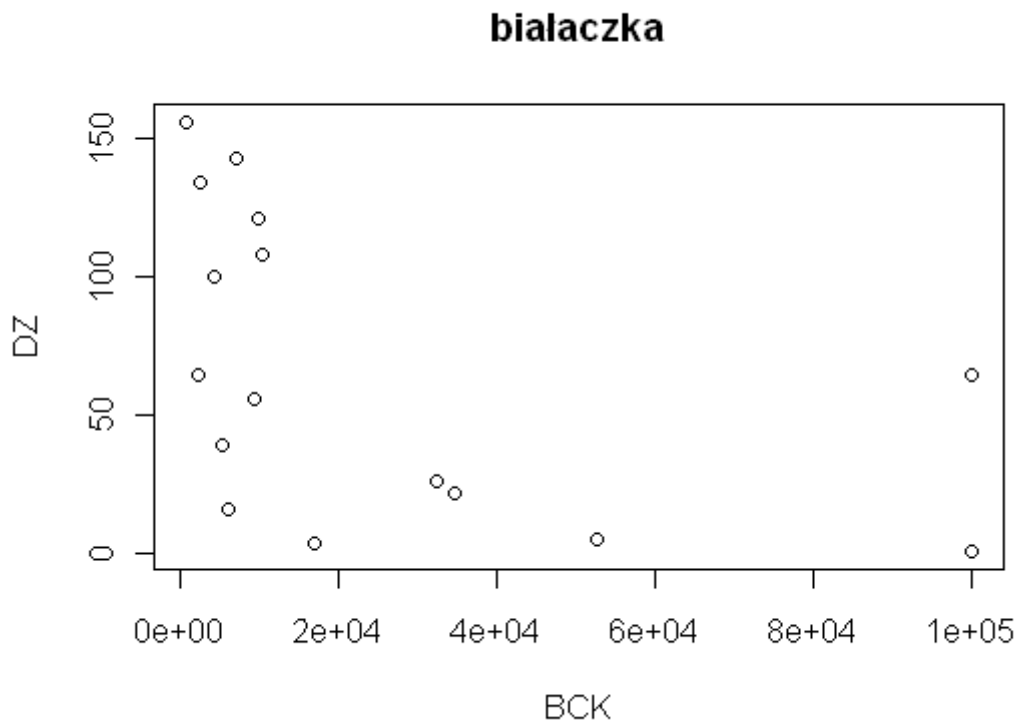
```
Model 1: n ~ rok * fkwart  
Model 2: n ~ rok + fkwart
```

	Resid. Df	Resid. Dev	Df	Deviance
1	12	49.962		
2	15	52.791	-3	-2.8292

```
> 1-pchisq(2.8292,3)
```

```
[1] 0.4187156
```

```
plot(BCK,DZ,main="białaczka")
```



```
> strzałkaTukeya(BCK,DZ,prog=0.2,d=0.5)
```

```
potęga x = 1 potęga y = 1  
błąd = 0.7277754 b1 = -0.003757266 b2 = -0.000591987
```

```
potęga (x/y),koniec - ESC  
wybierz x,y,ESC: x
```

```
potęga x = 0.5 potęga y = 1  
błąd = 0.4183008 b1 = -0.6041368 b2 = -0.2477795
```

```
potęga (x/y),koniec - ESC  
wybierz x,y,ESC: x
```

```
potęga x = 0 potęga y = 1  
błąd = 0.003882128 b1 = -23.67014 b2 = -23.48707
```

```
PRZYBLIŻONE RÓWNANIE REGRESJI: a = 274.3547 b = -23.57861
```

```
> bck.1 <- glm(DZ~log(BCK), family=Gamma(link="identity"))
> summary(bck.1)
```

```
Call:
glm(formula = DZ ~ log(BCK), family = Gamma(link = "identity"))
```

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.9789 -1.2270 -0.3461  0.4069  1.6086
```

```
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept)  248.753     91.596   2.716  0.0159 *
log(BCK)     -20.023     8.331  -2.404  0.0296 *
```

```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(Dispersion parameter for Gamma family taken to be 0.9268081)
```

```
Null deviance: 26.282 on 16 degrees of freedom
Residual deviance: 19.992 on 15 degrees of freedom
AIC: 174.51
```

```
Number of Fisher Scoring iterations: 10
```

```
> summary(bck.1,dispersion=1)
```

```
Call:
glm(formula = DZ ~ log(BCK), family = Gamma(link = "identity"))
```

```
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.9789 -1.2270 -0.3461  0.4069  1.6086
```

```
Coefficients:
            Estimate Std. Error z value Pr(>|z|)
(Intercept)  248.753     95.144   2.614  0.00894 **
log(BCK)     -20.023     8.653  -2.314  0.02067 *
```

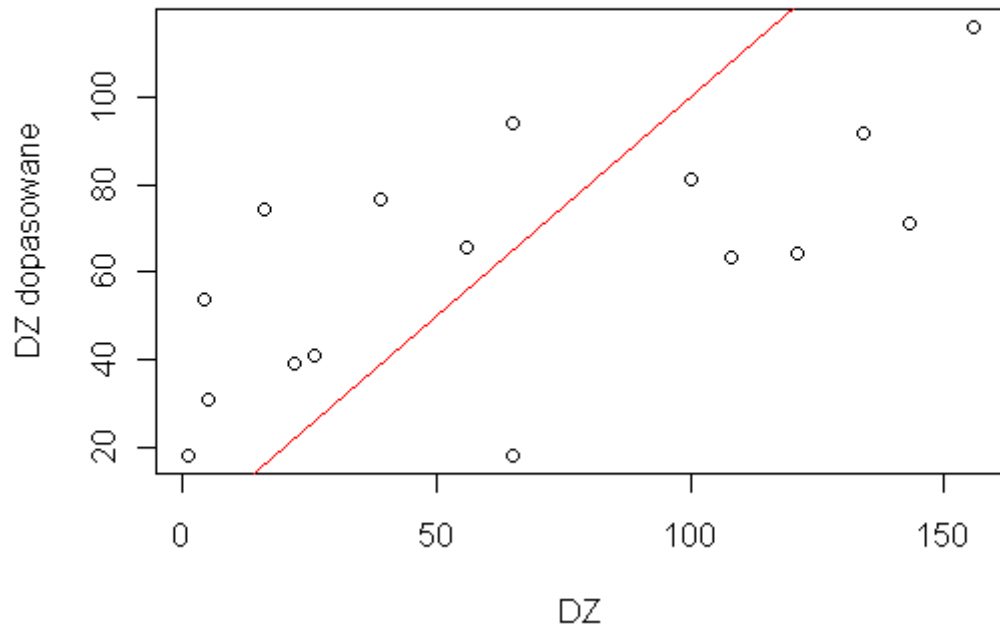
```
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

```
(Dispersion parameter for Gamma family taken to be 1)
```

```
Null deviance: 26.282 on 16 degrees of freedom
Residual deviance: 19.992 on 15 degrees of freedom
AIC: 174.51
```

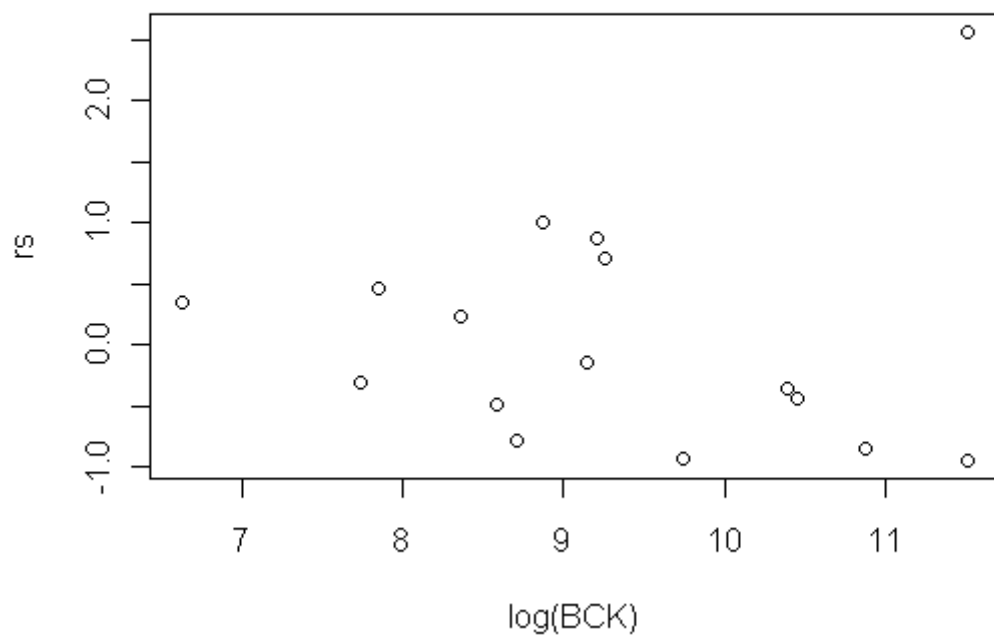
```
Number of Fisher Scoring iterations: 10
```

```
> plot(DZ,bck.1$fit,ylab="DZ dopasowane")
> abline(a=0,b=1,col="red")
```



```
> rs <- (DZ-bck.1$fit)/bck.1$fit
> plot(log(BCK),rs,main="Reszty z modelu")
```

### Reszty z modelu



```
*  
> boxplot(rs,main="Reszty z modelu")
```

### Reszty z modelu

