

```

# M3080 Simple Linear regression data (Treibergs)
#
#
# from OzDASL library of datasets
#
# http://www.statsci.org/data/general/olympic.html
#
# Olympic Records for High Jump, Discus and Long Jump
# Winning heights or distances (inches) for the High Jump, Discus
# and Long Jump events at the Olympics up to 1996.
#
# The data up to 1984 is from the DASL library. Later data
# collected by Gordon Smyth.
#
#
#
"HighJump" "DiscusThrow" "LongJump" "Year"
71.25 1147.5 249.75 -4
74.8 1418.9 282.875 0
71 1546.5 289 4
75 1610 294.5 8
76 1780 299.25 12
76.25 1759.25 281.5 20
78 1817.125 293.125 24
76.375 1863 304.75 28
77.625 1948.875 300.75 32
79.9375 1987.375 317.3125 36
78 2078 308 48
80.32 2166.85 298 52
83.25 2218.5 308.25 56
85 2330 319.75 60
85.75 2401.5 317.75 64
88.25 2550.5 350.5 68
87.75 2535 324.5 72
88.5 2657.4 328.5 76
92.75 2624 336.25 80
92.5 2622 336.25 84
NA NA 343.25 88
NA NA 341.5 92
NA NA 334.75 96

```

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```
> jy <- read.table("M3081DatHighJump.txt", header=TRUE)
```

```
> jy
```

	HighJump	DiscusThrow	LongJump	Year
1	71.2500	1147.500	249.7500	-4
2	74.8000	1418.900	282.8750	0
3	71.0000	1546.500	289.0000	4
4	75.0000	1610.000	294.5000	8
5	76.0000	1780.000	299.2500	12
6	76.2500	1759.250	281.5000	20
7	78.0000	1817.125	293.1250	24
8	76.3750	1863.000	304.7500	28
9	77.6250	1948.875	300.7500	32
10	79.9375	1987.375	317.3125	36
11	78.0000	2078.000	308.0000	48
12	80.3200	2166.850	298.0000	52
13	83.2500	2218.500	308.2500	56
14	85.0000	2330.000	319.7500	60
15	85.7500	2401.500	317.7500	64
16	88.2500	2550.500	350.5000	68
17	87.7500	2535.000	324.5000	72
18	88.5000	2657.400	328.5000	76
19	92.7500	2624.000	336.2500	80
20	92.5000	2622.000	336.2500	84
21	NA	NA	343.2500	88
22	NA	NA	341.5000	92
23	NA	NA	334.7500	96

```
> attach(jy)
```

```
>
```

```
> plot(Year, LongJump)
```

```
> fit <- lm( LongJump ~ Year)
```

```
> summary(fit)
```

Call:

```
lm(formula = LongJump ~ Year)
```

Residuals:

Min	1Q	Median	3Q	Max
-26.29845	-4.13043	0.01411	5.62934	25.30318

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	278.77891	4.18428	66.625	< 2e-16 ***
Year	0.68262	0.07346	9.292	6.89e-09 ***

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

Residual standard error: 10.99 on 21 degrees of freedom

Multiple R-squared: 0.8044, Adjusted R-squared: 0.7951

F-statistic: 86.35 on 1 and 21 DF, p-value: 6.892e-09

```
> abline(fit)
```

```
> B0 <- fit$coefficients[[1]];B0
```

```
[1] 278.7789
> B1 <- fit$coefficients[[2]];B1
[1] 0.6826163
> py <- B0 + B1*42; py
[1] 307.4488
> plot(42,py,col="red")
> plot(Year,LongJump)
> abline(fit)
> points(42,py,col="red")
>
```

