Taller-2

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Interpolación Polinómica

Se instalaran los paquetes Matrix y PolynomF

```
library(Matrix)
```

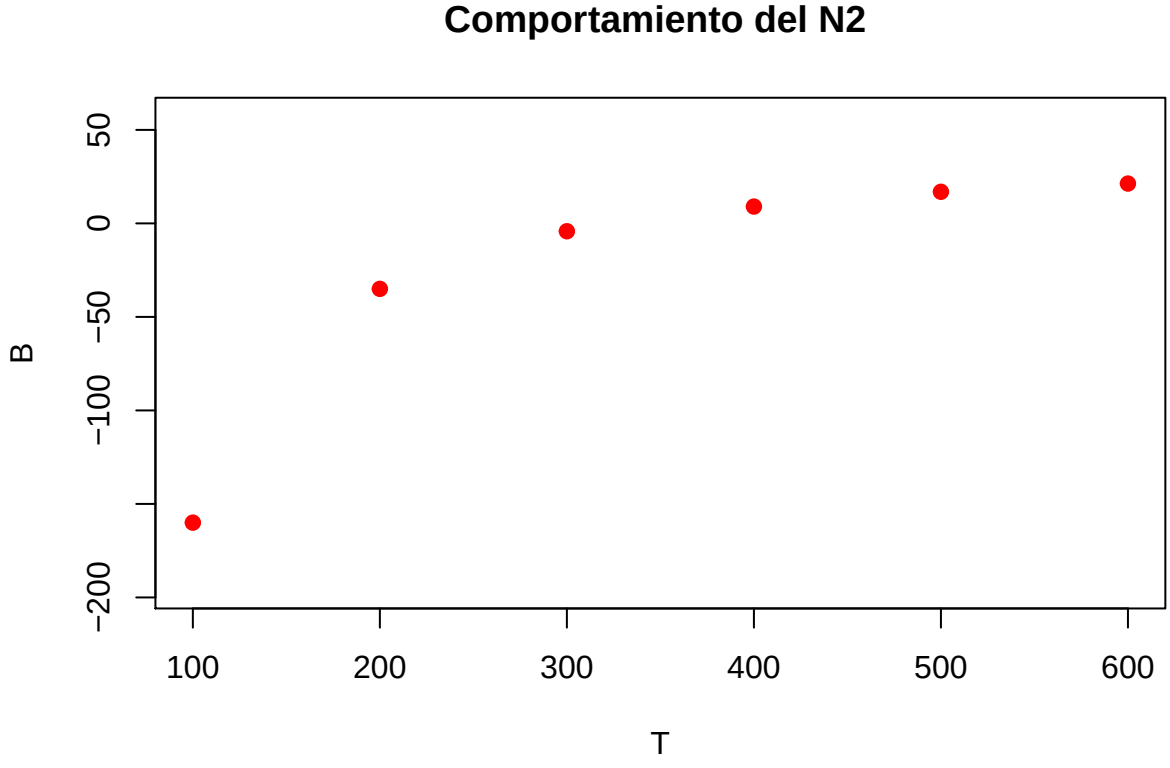
```
## Warning: package 'Matrix' was built under R version 3.4.4
```

```
library(PolynomF)
```

```
## Warning: package 'PolynomF' was built under R version 3.4.4
```

1. Considere el comportamiento de gases no ideales se describe a menudo con la ecuación virial de estado. los siguientes datos para el nitrógeno N_2

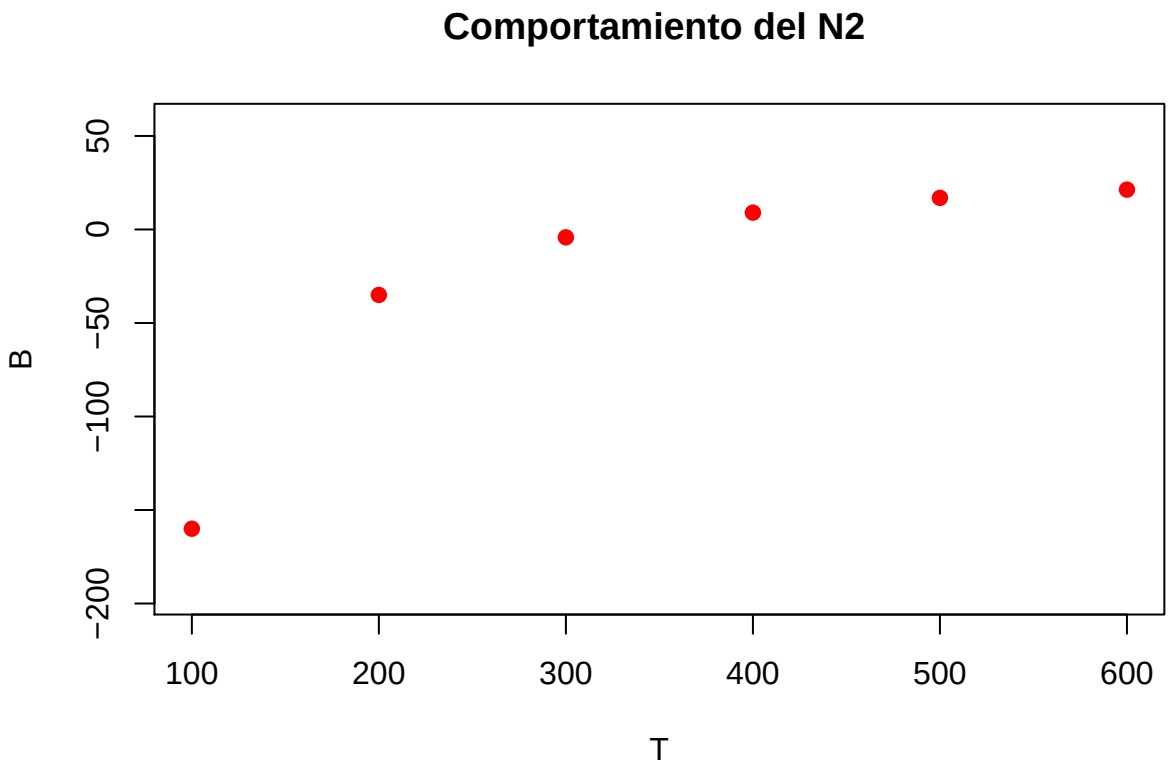
```
T = c(100,200,300,400,500,600)
B = c(-160,-35,-4.2,9,16.9,21.3)
 plot(T,B, pch=19, cex=1, col = "red", asp=1,xlab="T", ylab="B", main="Comportamiento del N2 ")
```

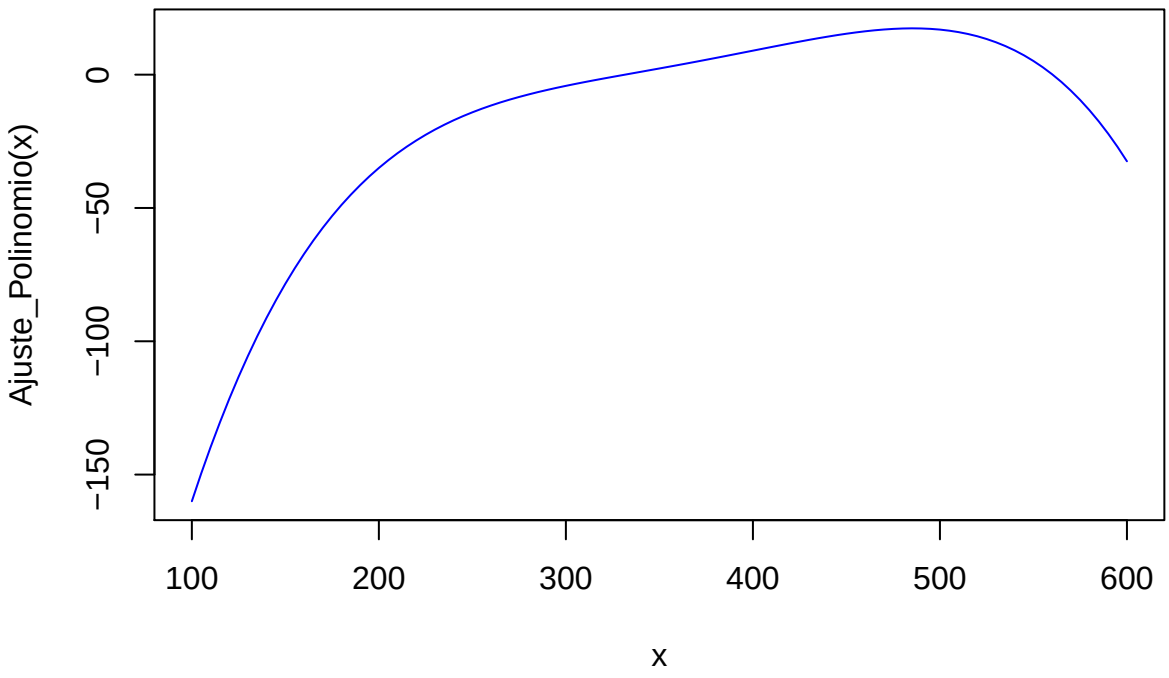


Para el ajuste Polinómico se debe utilizar los seis puntos, para obtener un polinomio de grado 5 o menor que 5

```
## -520.1 + 5.406917*x - 0.02174708*x^2 + 3.955833e-05*x^3 - 2.679167e-08*x^4
```

```
## [1] 15.35585
```


Comportamiento del N2
B
50
0
−50
−100
−200
100
200
300
400
500
600
T




```
DatosT = T[1:5]; DatosB = B[1:5]
 Ajuste_Polinomio1 = poly.calc(DatosT,DatosB)
 Ajuste_Polinomio1
```

```
## -520.1 + 5.406917*x - 0.02174708*x^2 + 3.955833e-05*x^3 - 2.679167e-08*x^4
```

```
 -520.1 + 5.406917*450 - 0.02174708*450^2 + 3.955833e-05*450^3 -
2.679167e-08*450^4
```

```
## [1] 15.35585
```

Forma Baricentrica de Lagrange

```
library(pracma)
```

```
## Warning: package 'pracma' was built under R version 3.4.4
```

```
##
## Attaching package: 'pracma'
```

```
## The following object is masked from 'package:PolynomF':
##
##     integral
```

```
## The following objects are masked from 'package:Matrix':
##
##     expm, lu, tril, triu
```

```r
barylag(DatosT,DatosB,450)
```

```
## [1] 15.35547
```