Medias

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Medias

```
x = c(32, 45, 67, 43, 28, 17, 48, 95)
n = length(x)
```

Cálculo de las medias del vector 32, 45, 67, 43, 28, 17, 48, 95 que consta de 8 observaciones.

Media aritmética

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i$$

```
ma =  sum(x)/n #Por definición
ma1 = mean(x) #Fórmula en R
```

La media aritmética del vector 32, 45, 67, 43, 28, 17, 48, 95 es 46.875 = `rma1`

Media aritmética ponderada

$$\bar{x}_w = \frac{\sum_{i=1}^{n} w_i \cdot x_i}{\sum_{i=1}^{n} w_i}$$

```
w = c(1, 2, 2, 3, 3, 2, 2, 1)
mp = sum(w*x)/sum(w)
```

La media aritmética ponderada del vector 32, 45, 67, 43, 28, 17, 48, 95 con los pesos 1, 2, 2, 3, 3, 2, 2, 1 es: 43.375

Media geométrica

$$\bar{x}_g = \left(\prod_{i=1}^{n} x_i\right)^{\frac{1}{n}}$$

```
mg = prod(x)^(1/n)
```

La media geométrica del vector 32, 45, 67, 43, 28, 17, 48, 95 es 41.62073

Media armónica

$$\bar{x}_A = \frac{n}{\sum_{i=1}^{n} \frac{1}{x_i}}$$

```
s = sum(1/x)
mA = n/s
```

La media armónica del vector 32, 45, 67, 43, 28, 17, 48, 95 es 36.7730079