

$$\sum_{i=1}^n i \quad 10 + 20 + 30 + 40 + 50$$
$$x_1 \quad x_2 \quad x_3 \quad x_4 \quad x_5$$

0

$$\sum_{i=1}^n i \quad 10 + 20 + 30 + 40 + 50$$
$$x_1 \quad x_2 \quad x_3 \quad x_4 \quad x_5$$

$$\sum_{i=1}^n x_i \quad 0$$

$$\sum_{i=1}^n i \quad 10 + 20 + 30 + 40 + 50$$

$$x_1 \quad x_2 \quad x_3 \quad x_4 \quad x_5$$

$$\sum_{i=1}^n x_i$$

$$\sum_{i=7}^{n+4} x_i$$

$x_7$  ↓ 8 9 10 11 12 13 14

$$\sum_{i=1}^n i \quad 10 + 20 + 30 + 40 + 50$$

$$x_1 \quad x_2 \quad x_3 \quad x_4 \quad x_5$$

$$\sum_{i=1}^n x_i$$

$$\sum_{i=7}^{n+4} x_i$$

$x_7 + x_8 + x_9 + x_{10} + x_{11} + x_{12} + x_{13} + x_{14}$

$$\sum_{i=1}^{n=7} c x_i$$

$$c \sum_{i=1}^{n=7} x_i$$

$$\sum_{i=1}^{n=7} c x_i$$

$$c \sum_{i=1}^{n=7} x_i$$

$$100 \quad 100 \quad (10+20+30+40+50+60+70)$$

$$1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7$$



$$\sum_{i=1}^{n=5} (x_i + y_i)$$

$$\sum_{i=1}^{n=5} x_i + \sum_{i=1}^{n=5} y_i$$

$$\sum_{i=1}^{n=5} x_i^2$$

$$\sum_{i=1}^{n=5} x_i^2 \quad \times \quad \left( \sum_{i=1}^{n=5} x_i \right)^2$$

$$\sum_{i=1}^{n=5} x_i y_i \quad \left( \sum_{i=1}^{n=5} x_i \right) \times \left( \sum_{i=1}^{n=5} y_i \right)$$

$$\begin{matrix} 2 & 2 & 2 & 2 & 2 \\ 10 & 20 & 5 & 7 & 8 \\ x_1 & x_2 & x_3 & x_4 & x_5 \end{matrix}$$

$$\sum_{i=1}^{n=5} x_i^2 \quad \times \quad \left( \sum_{i=1}^{n=5} x_i \right)^2$$

$$\sum_{i=1}^{n=5} x_i y_i \quad \left( \sum_{i=1}^{n=5} x_i \right) \times \left( \sum_{i=1}^{n=5} y_i \right)$$

$$10^2 + 20^2 + 5^2 + 7^2 + 8^2$$

$$x_1, x_2, x_3, x_4, x_5$$

$$\sum_{i=1}^{n=5} x_i^2$$

$$\times \left( \sum_{i=1}^{n=5} x_i \right)^2$$

$$10 \quad 20 \quad 30 \quad 40 \quad 50 \quad n=5$$

$$x_1 \quad x_2 \quad x_3 \quad x_4 \quad x_5 \quad \sum x_i y_i$$

$$6 \quad 7 \quad 8 \quad 9 \quad 10 \quad n=1$$

$$y_1 \quad y_2 \quad y_3 \quad y_4 \quad y_5$$

$$\left( \sum_{i=1}^{n=5} x_i \right) \times \left( \sum_{i=1}^{n=5} y_i \right)$$

```

import matplotlib.pyplot
matplotlib.pyplot.plot([10,20,30,2,50,8])
matplotlib.pyplot.savefig("figure2.png")
matplotlib.pyplot.show()

```

```
eg1 - Notepad
File Edit Format View Help
import math
import numpy
a=[10,20,math.nan,30]
b=[100,200,300,numpy.nan,500,math.nan]
c=[float('nan'),20,30,40,50,numpy.nan]
print(a)
print(b)
print(c)
```

```
eg1 - Notepad
File Edit Format View Help
import math
import numpy
a=[10,20,math.nan,30]
b=[100,200,300,numpy.nan,500,math.nan]
c=[float('nan'),20,30,40,50,numpy.nan]
print(a)
print(b)
print(c)
```



```
eg1 - Notepad
File Edit Format View Help
import math
import numpy
c=[float('nan'),20,30,40,50,numpy.nan]
sum=0
for x in c:
    sum+=x
print(sum)
a=10+20+math.nan
print(a)
```

```
eg1 - Notepad
File Edit Format View Help
import math
import numpy
c=[float('nan'),20,30,40,50,numpy.nan]
sum=0
for x in c:
    if math.isnan(x)==False: sum+=x
print(sum)
a=10+20+math.nan
print(a)
```

```
eg1 - Notepad
File Edit Format View Help
import statistics
a=[10,20,30,40,50]
print(statistics.mean(a))
```

Ln 3, Col 12 100% Windows (CRLF) UTF-8

```
*eg1 - Notepad
File Edit Format View Help
import statistics
a=[10,20]
print(statistics.geometric_mean(a))
```

Ln 3, Col 28 100% Windows (CRLF) UTF-8

```
30.0

C:\thinkingmachines.in>notepad eg1.py

C:\thinkingmachines.in>py eg1.py
31.72

C:\thinkingmachines.in>notepad eg1.py
import statistics
a=[10,20]
print(statistics.geometric_mean(a))

C:\thinkingmachines.in>py eg1.py
Traceback (most recent call last):
  File "eg1.py", line 4, in <module>
    print(statistics.geometric_mean(a))
AttributeError: module 'statistics' has no attribute 'geometricmean'

C:\thinkingmachines.in>notepad eg1.py

C:\thinkingmachines.in>py eg1.py
14.142135623730955

C:\thinkingmachines.in>notepad eg1.py

C:\thinkingmachines.in>
```

```
eg1 - Notepad
File Edit Format View Help
import statistics
a=[10,20,30]
print(statistics.geometric_mean(a))
print(
```

```
eg1 - Notepad
File Edit Format View Help
import statistics
a=[10,20,30]
print(statistics.geometric_mean(a))
print(10*20*30)
print(18.17*18.17*18.17)
```

Thinking  
MACHINES  
<https://thinkingmachines.in>

$$\begin{array}{r} 2 \quad 5 \quad 6 \\ \quad 3 \\ \hline \frac{1}{2} + \frac{1}{5} + \frac{1}{6} \\ \hline 60 \end{array}$$

```
Command Prompt
C:\thinkingmachines.in>py eg1.py
18.17120592832139
6000
5832

C:\thinkingmachines.in>notepad eg1.py
eg1 - Notepad
File Edit Format View Help
import statistics
a=[2,5,6]
print(statistics.harmonic_mean(a))
print(180/52)

C:\thinkingmachines.in>notepad eg1.py
eg1 - Notepad
File Edit Format View Help
import statistics
a=[2,5,6]
print(statistics.harmonic_mean(a))
print(180/52)

C:\thinkingmachines.in>py eg1.py
3.4615384615384617
3.4615384615384617

C:\thinkingmachines.in>notepad eg1.py
eg1 - Notepad
File Edit Format View Help
import statistics
a=[2,5,6]
print(statistics.harmonic_mean(a))
print(180/52)

C:\thinkingmachines.in>
```

Thinking  
MACHINES  
<https://thinkingmachines.in>

$$\begin{array}{r} 2 \quad 5 \quad 6 \\ \hline 3 \\ \frac{1}{2} + \frac{1}{5} + \frac{1}{6} \\ \hline 30 + 12 + 10 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 3 \\ \hline 52 \\ \hline 60 \end{array}$$

$$\begin{array}{r} 3 \times 60 \\ \hline 52 \end{array}$$

$$\begin{array}{r} 180 \\ \hline 52 \end{array}$$



A screenshot of a Notepad window titled "eg1 - Notepad". The window contains the following Python code:

```
import statistics
a=[2,5,6]
print(statistics.median(a))
a=[10,20,30,40]
print(statistics.median(a))
```

The status bar at the bottom indicates "Ln 6, Col 1", "100%", "Windows (CRLF)", and "UTF-8".

```
eg1 - Notepad
File Edit Format View Help
import statistics
a=[2,5,6]
print(statistics.median(a))
a=[10,20,30,40]
print(statistics.median(a))
a=[10,20,30,40,50,60]
print(statistics.median(a))
```

```
*eg1 - Notepad
File Edit Format View Help
import statistics
a=[2,5,6]
print(statistics.median(a))
a=[10,20,30,40]
print(statistics.median(a))
a=[10,20,30,40,50,60]
print(a)
print(statistics.median(a))
print(statistics.median_low(a))
print(statistics.median_high(a))
```