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# Practical - Trapezoidal rule

1. Normal aproach

```
f[x_] := 1/(1 + x)
```

```
f[1]
```

$$\frac{1}{2}$$

```
f[2.25]
```

```
0.307692
```

```
f[3.5]
```

```
0.222222
```

```
f[4.75]
```

```
0.173913
```

```
f[6]
```

$$\frac{1}{7}$$

```
1.25 / 2
```

```
0.625
```

```
0.625 {f[1] + 2 f[2.25] + 2 f[3.5] + 2 f[4.75] + f[6]}
```

```
{1.28157}
```

2. Approach Using command

```
a = 1
b = 6
c = 5
n = 5
h = (b - a) / n
sol = N[(h / 2) * (N[(f[a] + f[b] + (2 * Sum[f[a + (i * h)], {i, 1, n - 1}]))])]
```

1

6

5

5

1

1.27143

```
Print["The area under the curve is", sol]
```

The area under the curv is1.27143

$$f[x\_] := \frac{1}{1 + x}$$

```
a = 0
b = 1
n = 4
h = (b - a) / n
sol = N[(h / 2) * (N[(f[a] + f[b] + (2 * Sum[f[a + (i * h)], {i, 1, n - 1}]))])]
```

0

1

4

$\frac{1}{4}$

0.697024