

tasks (/github/abrudz/tasks/tree/main)
 / Revision2.ipynb (/github/abrudz/tasks/tree/main/Revision2.ipynb)

In [3]:

```

d
-1+10
p d
DR d
DR -1+10

```

Out[3]:

```
0123456789
```

Out[3]:

```
0 1 2 3 4 5 6 7 8 9
```

Out[3]:

```
10
```

Out[3]:

```
80
```

Out[3]:

```
83
```

In [4]:

```

{ω∈D} 'Easy as 1, 2 and 3'
{(ω∈D)≠ω} 'Easy as 1, 2 and 3'
{(~ω∈D)≠ω} 'Easy as 1, 2 and 3'
{Dω} 'Easy as 1, 2 and 3'
{(D,'*')[Dω]} 'Easy as 1, 2 and 3'

```

Out[4]:

```
0 0 0 0 0 0 0 0 1 0 0 1 0 0 0 0 0 1
```

Out[4]:

```
123
```

Out[4]:

```
Easy as , and
```

Out[4]:

```
11 11 11 11 11 11 11 11 2 11 11 3 11 11 11 11 11 4
```

Out[4]:

```
*****1**2*****3
```

Evaluating polynomials

$$f(x) = 3x^2 + 2x + 5$$

In [5]:

```
3+{←(3×ω*2) + (2×ω) + 5} ←2 3p10 12 3 5
```

Out[5]:

```

10 12 3
5 10 12
325 461 38
90 325 461
328 464 41
93 328 464

```

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

In [6]: $(a \ b \ c) \leftarrow 2 \begin{pmatrix} -6 & -8 \\ -b(+, -)0.5 \ddot{\omega} (b \times 2) - 4 \times a \times c \end{pmatrix} \div 2 \times a$

Out[6]: $\begin{pmatrix} -1 & 4 \end{pmatrix}$

In [7]: `]dinput
QuadEval←{
 (a b c)←α
 A (a×ω*2)+(b×ω)+c
 A +/a b c×[2]ω°. *φ-1+ι3
 A a b c+. *φω°. *φ-1+ι3
 α1⊘ω
}`

In [18]: $3 \ 2 \ 5 \ \text{QuadEval} \ 5 \ 10 \ 12 \begin{pmatrix} -3 \end{pmatrix}$

Out[18]: $90 \ 325 \ 461 \ 26$

In [8]: $2 \begin{pmatrix} -6 & -8 \end{pmatrix} \text{QuadEval} \begin{pmatrix} -1 & 4 \end{pmatrix}$

Out[8]: $0 \ 0$

Generalised to higher polynomials:

$$f(x) = 5x^5 - 3x^2 + 4x - 2$$

In [16]: $5 \ 0 \ 0 \begin{pmatrix} -3 & 4 & -2 \end{pmatrix} \{ \alpha +. \times \omega \circ. \times \phi^{-1+\iota \rho} \alpha \} \begin{pmatrix} -3 & 5 \end{pmatrix}$

Out[16]: $\begin{pmatrix} -1256 & 15568 \end{pmatrix}$

In [10]: $(\begin{pmatrix} -3 & 5 \end{pmatrix})_{15} \ 0 \ 0 \begin{pmatrix} -3 & 4 & -2 \end{pmatrix}$

Out[10]: $\begin{pmatrix} -1256 & 15568 \end{pmatrix}$

Inner product:

In [11]: `1 0 -1+.×4 5 8
+/1 0 -1 × 4 5 8
'AEI' = 'OEO'
+/'AEI' = 'OEO'
'AEI' +.= 'OEO'`

Out[11]: $\begin{pmatrix} -4 \end{pmatrix}$

Out[11]: $\begin{pmatrix} -4 \end{pmatrix}$

Out[11]: $0 \ 1 \ 0$

Out[11]: 1

Out[11]: 1

User-defined functions

In [12]:

```
13Times ← {13×ω}  
A DefinedFunction  
A ΔMyFnΔ
```

```
SYNTAX ERROR  
      13 Times←{13×ω}  
          ^
```

In [13]:

```
□NLι9
```

Out[13]:

```
QuadEval  
a  
b  
c
```

In the editor

- Esc : Close and save changes
- Shift+Esc : Close but do not save

In [19]:

```
▽ Main  
  A Find the mean value of lengths of words in a text file  
  3+4  
  ~1+6×ι10  
  var←'hello'  
  var2←'hello'  
  A Under program control  
▽
```

In [20]:

```
□VR'Main'
```

Out[20]:

```
▽ Main  
[1]      A Find the mean value of lengths of words in a text f  
[2]      3+4  
[3]      ~1+6×ι10  
[4]      var←'hello'  
[5]      var2←'hello'  
[6]      A Under program control  
▽
```

In the debugger/tracer

- Ctrl+Enter : Trace expression
- Enter : Execute line
- Shift+Enter : Edit
- Ctrl+Up : Toggle local name

VR'SetStopsA'

In [17]:

```
▽ result←{option}Lengths filepath;text;tn;total_length;nwords
A Find information about lengths of words in a text file
A {option}:
A      mean
A  default: total
A --- Read the file ---
  tn←filepath ⌈NUNTIE 0
  text←⌈NREAD tn 82 ~1
  ⌈NUNTIE tn A ⌈NUNTIE⌈NUNMS
A --- Get the list of word lengths ---
A Assuming all non-spaces are word characters and words separated
  total_length←+/ ' '=text
A --- Total / Mean ---
  :If 0=⌈NC'option'
  A Function was called monadically
    result←total_length
  :Else
    :Select option
    :Case 'mean'
      nwords←1+/ ' '=text
      result←total_length÷nwords
    :Case 'total'
      result←total_length
    :Else
      result←'Unknown Option'
    :EndSelect
  :EndIf
▽
```

```
]box on
]rows -fold=3
```

```
      'they''re'
they're
      'they' 're'
```

they	re
------	----

```
      {(ιρω)φ``ω}'racecar'
(⌈+2 3ρ'carroP') {αεω}'racecar'
      'carrace' {α≡``(ιρω)φ``ω}'racecar'
0 0 0 0 0 0 0
      'carrace' {α◦≡``(ιρω)φ``ω}'racecar'
0 0 0 1 0 0 0
'carrace' {√/∧/α=[2]†(ιρω)φ``ω}'racecar'
'carrace' {(α)ε(ιρω)φ``ω}'racecar'
```

```

ReplaceAt←{
    result←ω
    (ω[1▷α])←2▷α
    result
}

```

```

ReplaceAt←{
    result←ω
    (result[1▷α])←2▷α
    result
}

```

```

ReplaceAt←{
    result←ω ◊ (i v)←α
    result[i]←v
    result
}

```

```

▽ array←args ReplaceAt array;v;i
    (i v)←args
    array[i]←v
▽

```

```

    ▽ array←EncloseIfSimple array
[1]      :If 1≥≡array    A Is simple
[2]      array←←array
[3]      :EndIf
    ▽

```

$$f^3(x)$$

(f*3)x

]disp (EncloseIfSimple*100) <2 3p16

```

┌ 1 2 3 ┐
└ 4 5 6 ┘
└────────┘

```

12 {'early' 'late'[1+ $\alpha < \omega$]} 10 5 23

early	early	late
-------	-------	------

IsLate

```

    ▽ r←IsLate times;time
[1]   r←''
[2]   :For time :In times
[3]       :If time>12
[4]       r,←'late'

```

EncloseIfSimple

```

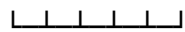
    ▽ array←EncloseIfSimple array
[1]   :If 1≥≡array  A Is simple
[2]       array←<array
[3]   :EndIf
    ▽

```

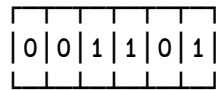
EIS←{1≥≡ ω : $\omega < \omega$ $\diamond \omega$ }

EIS←{(1+1≥≡ ω) $\supset \omega(\omega < \omega)$ }

0	0	1	1	0
---	---	---	---	---



(pp)''I' 3 'am' (1 5 8) 'a' 'matrix'



]display vals

