Jupyter notebook custom conversion

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Overview

nbconvert latex test

Printing using python

Pyout (and Text Wrapping)

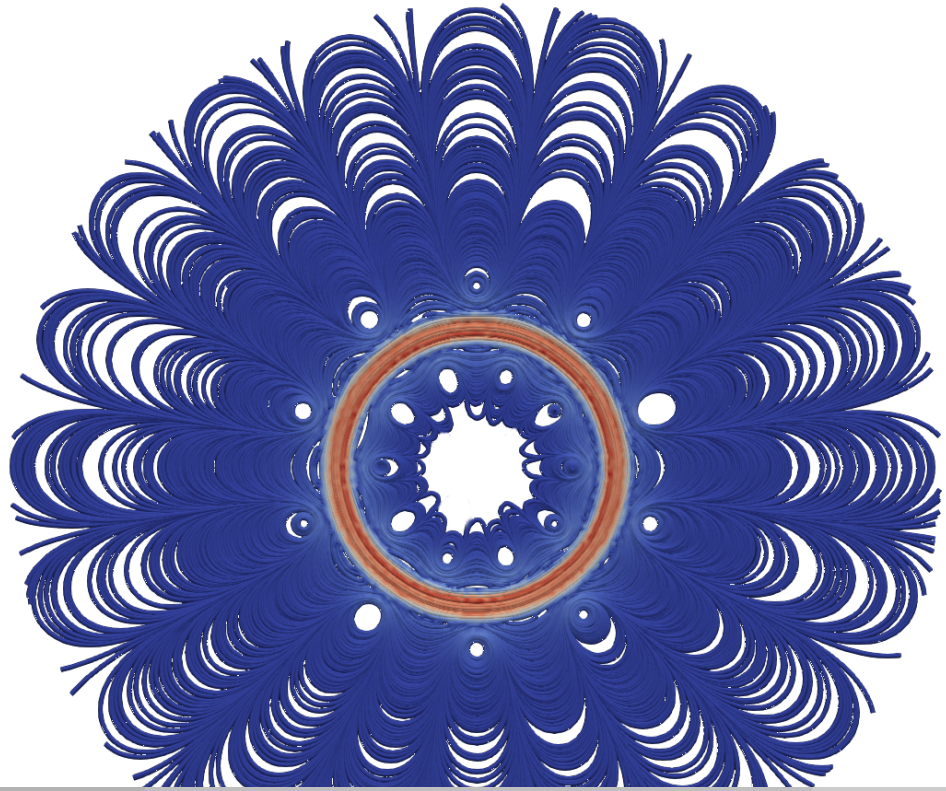
Image and plots

As plain text using markdown

Once exported as markdown and converted to latex/pdf with pandoc, the `{width=60%}` will fix the width of the picture and the `My legend` will appear as caption:

```
![My legend](figures/magnetostatics_field.png){width=50% #figlabel}
```

gives the result showns in this figure.



Plots produced by the code I

```
import numpy as np
x = np.linspace(-10,10,300)
y = np.sin(x)
plt.figure(figsize=(4,3),dpi=100)
p=plt.plot(x,y)
```

Plots produced by the code II

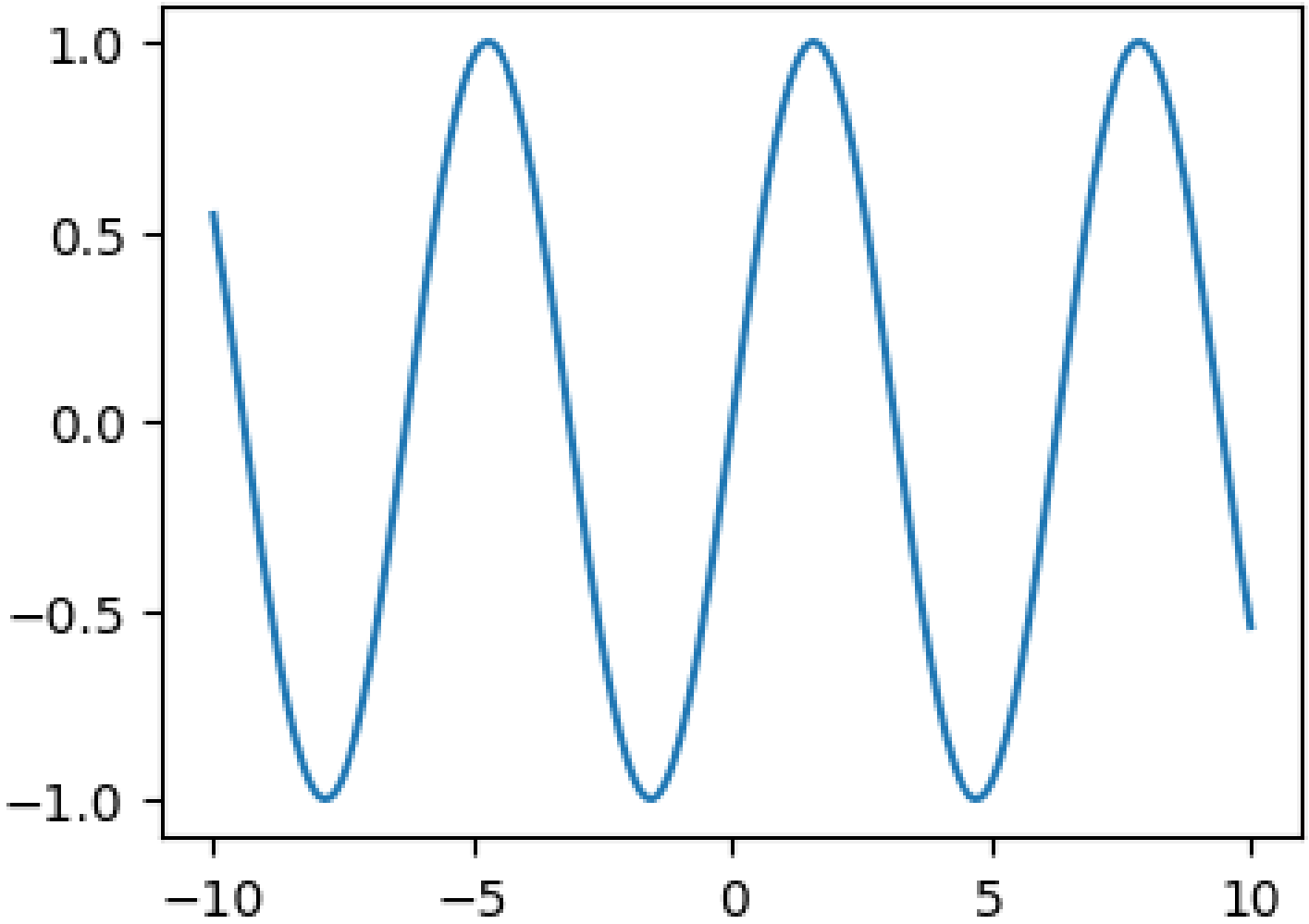
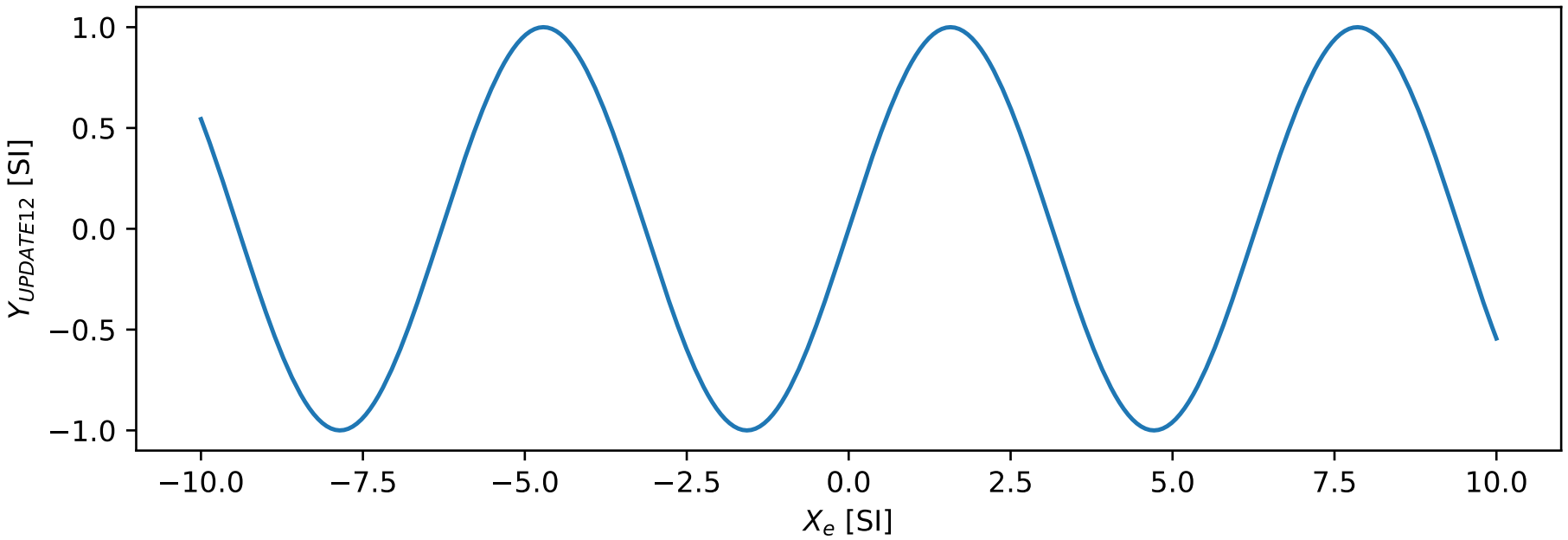


Figure 3: png

Plots produced by the code III

```
plt.figure(figsize=(8,3))
plt.plot(x,y)
plt.xlabel('$X_{e}$ [SI]')
plt.ylabel('$Y_{UPDATE12}$ [SI]')
plt.tight_layout()
jpu.plt2md('myplot','This is a test of how to get proper'+\
       'plot from Jupyter notebook in MD,'+\
       'to be processed using PANDOC','100%','myplot_LABEL')
```



Plots produced by the code IV

Figure 4: This is a test of how to get properplot from Jupyter notebook in MD,to be processed using PANDOC

We can then refer to a given figure using cross-references like this, obtained with:

```
[like this](#myplot)
```

```
plt.figure(figsize=(3,3))
plt.plot(np.sqrt(np.abs(x)),y**2)
plt.xlabel('$X_{e}$ [SI]')
plt.ylabel('$Y_{OTHER}$ [SI]')
plt.tight_layout()
jpu.plt2md('myplot2','This is another test of how to get proper'+\
       'plot from Jupyter notebook in MD,'+\
       'to be processed using PANDOC','50%','myplot2_LABEL')
```

Plots produced by the code V

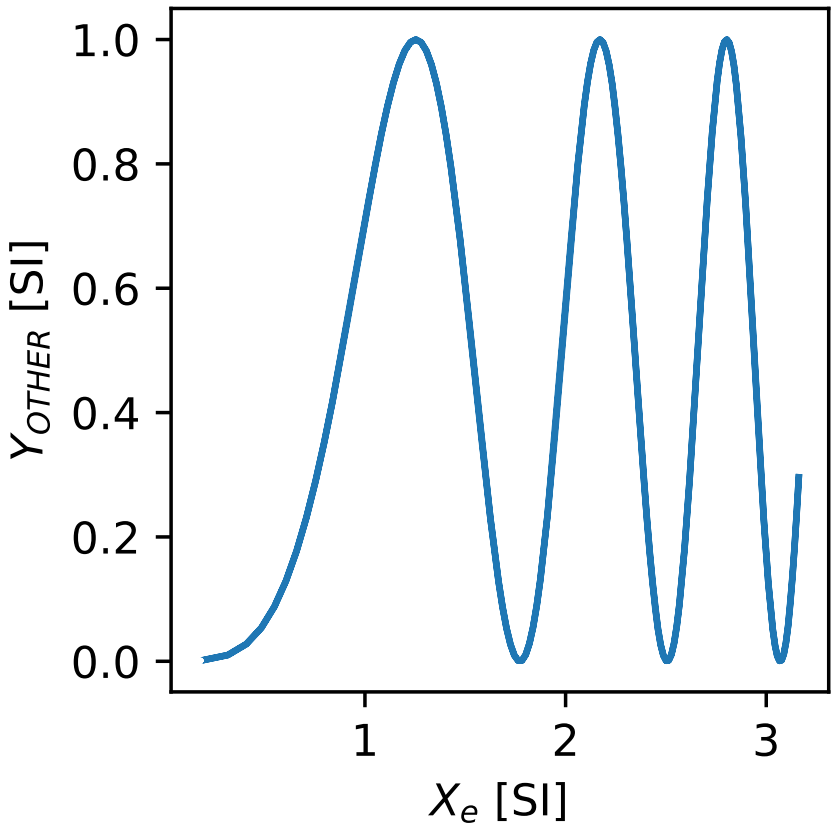
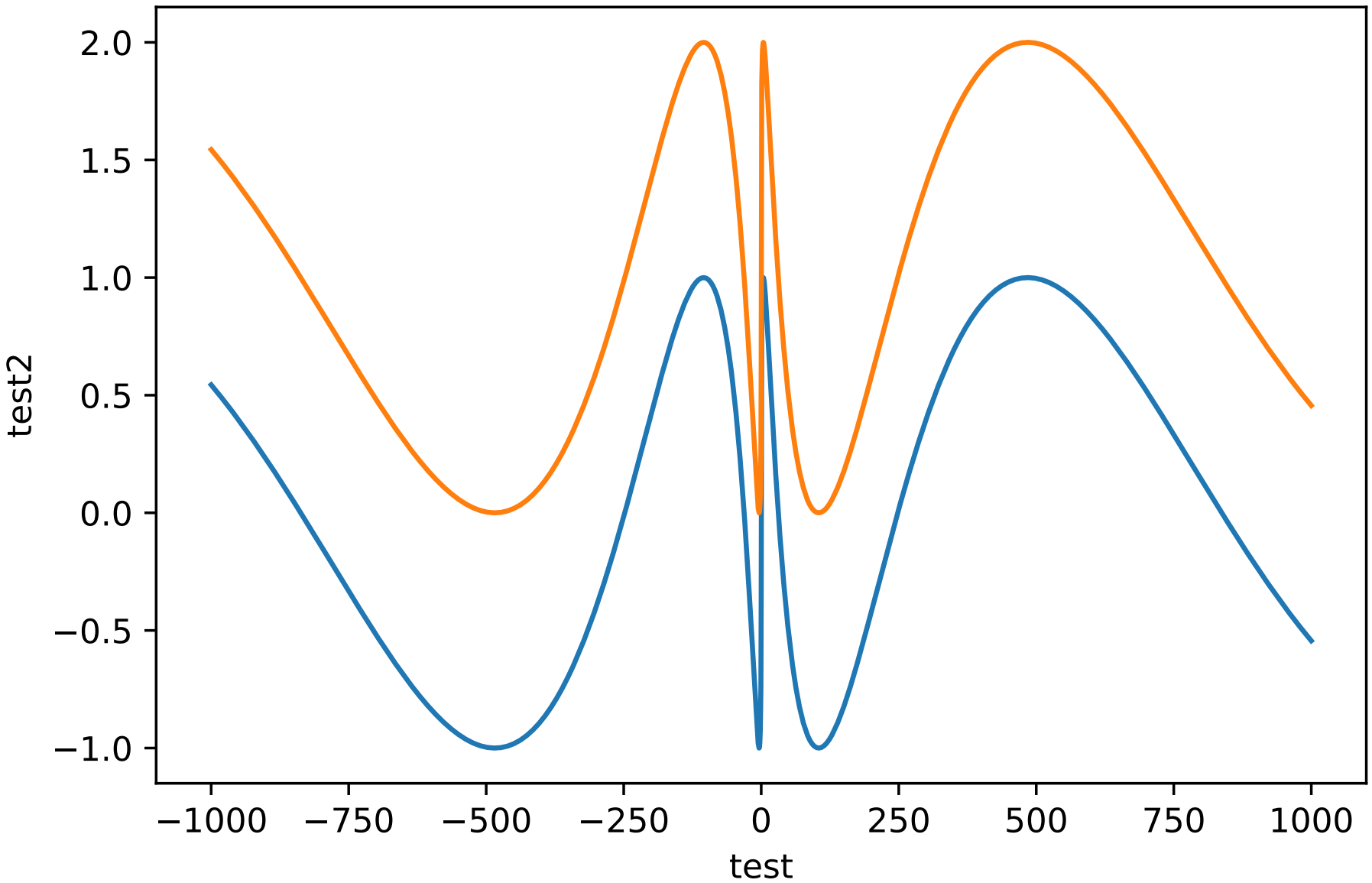


Figure 5: This is another test of how to get properplot from Jupyter notebook in MD,to be processed using PANDOC

Plots produced by the code VI

```
plt.figure(figsize=(6,4))
plt.plot(x**3,y)
plt.plot(x**3,y+1)
plt.xlabel('test')
plt.ylabel('test2')
plt.tight_layout()
jpu.plt2md('myplot3','Adding more plot without re-creating a figure: curves
↪  cumulates')
```

Plots produced by the code VII



Operator Highlighing Check

Tables

Markdown as plain text

First a *markdown* table:

Table 1: my caption

Column 1	Column 2
1	3
~~a~~	b
4	&

Pandas as default and Markdown I

```
import pandas as pd
df=pd.DataFrame(np.random.randn(10,3))
```

Default printing is HTML, so it looks good on the web but it is not well rendered in pdf via ipynb->MB->pdf (using nbconvert and pandoc). A special function `df2md(df)` is included in the `jupy_pandoc_utils` package to write out a markdown format. This allows to set caption and even to refer to the table in the main document like this (using vanilla pandoc) or cited like table Table 2 (using pandoc-crossref filter, but hyperlink doesn't seem to work in HTML though)

```
# Good in HTML, but not pure markdown
# Impossible to put a caption
df.describe()
```

0

1

2

count

Pandas as default and Markdown II

10.000000

10.000000

10.000000

mean

-0.124437

-0.193223

0.086777

std

0.865165

0.856129

0.811450

min

Pandas as default and Markdown III

-1.667288

-1.287436

-1.705184

25%

-0.570475

-0.762087

-0.242516

50%

-0.040271

-0.230659

0.453195

75%

Pandas as default and Markdown IV

0.438126

0.007493

0.646274

max

1.100231

1.791935

0.828771

```
# Good in pure MD and possible to put a caption and a label
jpu.df2md(df.describe(),'Caption table','#tbl:label2')
```

Pandas as default and Markdown V

Table 2: Caption table

labels	0	1	2
count	10	10	10
mean	-0.124437	-0.193223	0.0867771
std	0.865165	0.856129	0.81145
min	-1.66729	-1.28744	-1.70518
25%	-0.570475	-0.762087	-0.242516
50%	-0.0402713	-0.230659	0.453195
75%	0.438126	0.00749318	0.646274
max	1.10023	1.79194	0.828771

Pandas as default and Markdown VI

One might want to display table without showing the code which leads to it, especially in a proper documentation. The following block will display the table in the final document but not the line

```
jpu.df2md(df.describe(),'Caption table with hidden source code this time.
↪  {#tbl:label3}')
```

which produces it, as shown in Table 3

Table 3: Caption table with hidden source code this time

labels	0	1	2
count	10	10	10
mean	-0.124437	-0.193223	0.0867771
std	0.865165	0.856129	0.81145
min	-1.66729	-1.28744	-1.70518
25%	-0.570475	-0.762087	-0.242516
50%	-0.0402713	-0.230659	0.453195

Pandas as default and Markdown VII

75%	0.438126	0.00749318	0.646274
max	1.10023	1.79194	0.828771

Sympy output

Cell tags

No tag at all

```
l='1 3 5 7 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75
↪  78 81 84 87 90 93 96 99 103'
print(l.split(' '))
l
```

[‘1’, ‘3’, ‘5’, ‘7’, ‘9’, ‘12’, ‘15’, ‘18’, ‘21’, ‘24’, ‘27’, ‘30’, ‘33’, ‘36’, ‘39’, ‘42’, ‘45’, ‘48’, ‘51’, ‘54’, ‘57’, ‘60’, ‘63’, ‘66’, ‘69’, ‘72’, ‘75’, ‘78’, ‘81’, ‘84’, ‘87’, ‘90’, ‘93’, ‘96’, ‘99’, ‘103’]

‘1 3 5 7 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90 93 96 99 103’

Tag `hide`

Tag `hide_input`

['1', '3', '5', '7', '9', '12', '15', '18', '21', '24', '27', '30', '33', '36', '39', '42', '45', '48', '51', '54', '57', '60', '63', '66', '69', '72', '75', '78', '81', '84', '87', '90', '93', '96', '99', '103']

'1 3 5 7 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75 78 81 84 87 90 93 96 99 103'

Tag `hide_ouput`

```
l='1 3 5 7 9 12 15 18 21 24 27 30 33 36 39 42 45 48 51 54 57 60 63 66 69 72 75
↪  78 81 84 87 90 93 96 99 103'
print(l.split(' '))
l
```