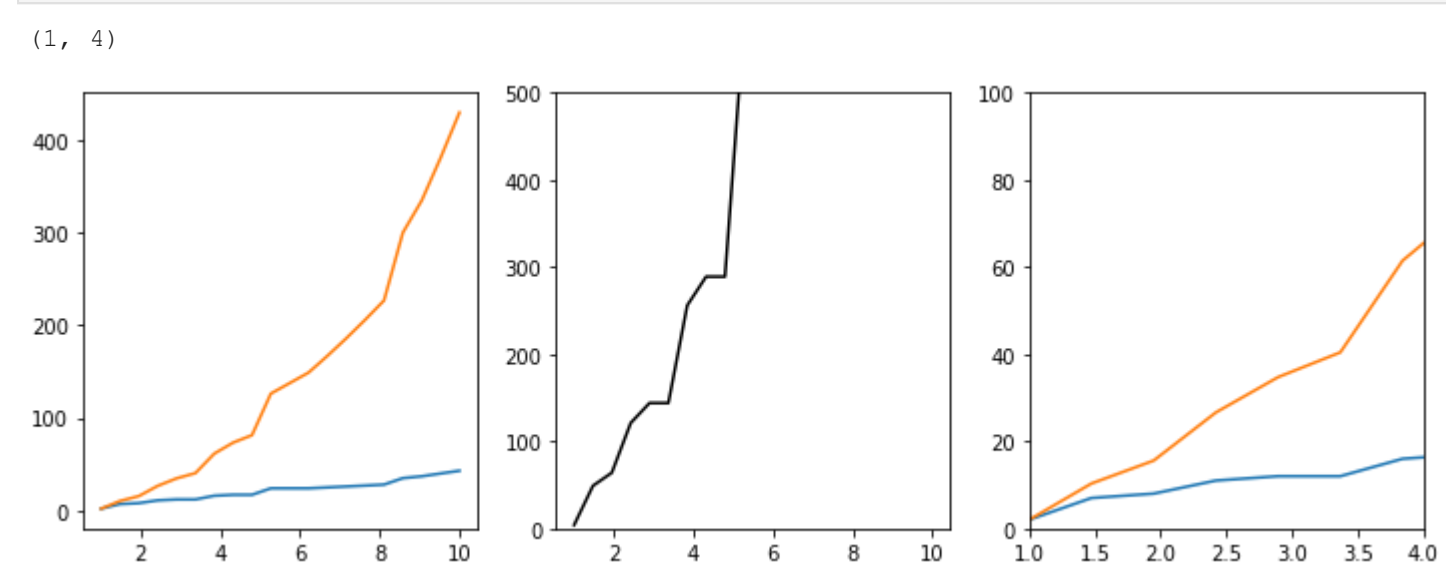
Matplolib 2

In [16]:
```python
import matplotlib.pyplot as plt
import numpy as np
%matplotlib inline
x = np.linspace(1,10,20)
from numpy.random import randint
y = randint(1,50,20)
y= np.sort(y)
y1 = x*y
```

In [18]:
```python
fig,ax = plt.subplots(1,3, figsize = (12,4))
ax[0].plot(x,y,x,y1)
ax[1].plot(x,y**2,'k')
ax[1].set_ylim([0,500])
ax[2].plot(x,y,x,y1)
ax[2].set_ylim([0,100])
ax[2].set_xlim([1,4])
```

Out[18]: (1, 4)



In [ ]:

In [ ]:
```python
#other kind of plots.
```

In [19]:
```python
dir(plt)
```

Out[19]:
```
['Annotation',
 'Arrow',
 'Artist',
 'AutoLocator',
 'Axes',
 'Button',
 'Circle',
 'Figure',
 'FigureCanvasBase',
 'FixedFormatter',
 'FixedLocator',
 'FormatStrFormatter',
 'Formatter',
 'FuncFormatter',
 'GridSpec',
 'IndexLocator',
 'Line2D',
 'LinearLocator',
 'Locator',
 'LogFormatter',
 'LogFormatterExponent',
 'LogFormatterMathtext',
 'LogLocator',
 'MaxNLocator',
 'MultipleLocator',
 'Normalize',
 'NullFormatter',
 'NullLocator',
 'Number',
 'PolarAxes',
 'Polygon',
 'Rectangle',
 'ScalarFormatter',
 'Slider',
 'Subplot',
 'SubplotTool',
 'Text',
 'TickHelper',
 'Widget',
 '_INSTALL_FIG_OBSERVER',
 '_IP_REGISTERED',
 '__builtins__',
 '__cached__',
 '__doc__',
 '__file__',
 '__loader__',
 '__name__',
 '__package__',
 '__spec__',
 '_auto_draw_if_interactive',
 '_backend_mod',
 '_get_running_interactive_framework',
 '_interactive_bk',
 '_log',
 '_pylab_helpers',
 '_setp',
 '_setup_pyplot_info_docstrings',
 '_show',
 'acorr',
 'angle_spectrum',
 'annotate',
 'arrow',
 'autoscale',
 'autumn',
 'axes',
 'axhline',
 'axhspan',
 'axis',
 'axvline',
 'axvspan',
 'bar',
 'barbs',
 'barh',
 'bone',
 'box',
 'boxplot',
 'broken_barh',
 'cbook',
 'cla',
 'clabel',
 'clf',
 'clim',
 'close',
 'cm',
 'cohere',
 'colorbar',
 'colormaps',
 'connect',
 'contour',
 'contourf',
 'cool',
 'copper',
 'csd',
 'cycler',
 'dedent',
 'delaxes',
 'deprecated',
 'disconnect',
 'docstring',
 'draw',
 'draw_all',
 'draw_if_interactive',
 'errorbar',
 'eventplot',
 'figaspect',
 'figimage',
 'figlegend',
 'fignum_exists',
 'figtext',
 'figure',
 'fill',
 'fill_between',
 'fill_betweenx',
 'findobj',
 'flag',
 'functools',
 'gca',
 'gcf',
 'gci',
 'get',
 'get_backend',
 'get_cmap',
 'get_current_fig_manager',
 'get_figlabels',
 'get_fignums',
 'get_plot_commands',
 'get_scale_docs',
 'get_scale_names',
 'getp',
 'ginput',
 'gray',
 'grid',
 'hexbin',
 'hist',
 'hist2d',
 'hlines',
 'hot',
 'hsv',
 'importlib',
 'imread',
 'imsave',
 'imshow',
 'inferno',
 'inspect',
 'install_repl_displayhook',
 'interactive',
 'ioff',
 'ion',
 'isinteractive',
 'jet',
 'legend',
 'locator_params',
 'logging',
 'loglog',
 'magma',
 'magnitude_spectrum',
 'margins',
 'matplotlib',
 'matshow',
 'minorticks_off',
 'minorticks_on',
 'mlab',
 'new_figure_manager',
 'nipy_spectral',
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 'pause',
 'pcolor',
 'pcolormesh',
 'phase_spectrum',
 'pie',
 'pink',
 'plasma',
 'plot',
 'plot_date',
 'plotfile',
 'plotting',
 'polar',
 'prism',
 'psd',
 'pylab_setup',
 'quiver',
 'quiverkey',
 'rc',
 'rcParams',
 'rcParamsDefault',
 'rcParamsOrig',
 'rc_context',
 'rcdefaults',
 'rcsetup',
 're',
 'register_cmap',
 'rgrids',
 'savefig',
 'sca',
 'scatter',
 'sci',
 'semilogx',
 'semilogy',
 'set_cmap',
 'set_loglevel',
 'setp',
 'show',
 'silent_list',
 'specgram',
 'spring',
 'spy',
 'stackplot',
 'stem',
 'step',
 'streamplot',
 'style',
 'subplot',
 'subplot2grid',
 'subplot_tool',
 'subplots',
 'subplots_adjust',
 'summer',
 'suptitle',
 'switch_backend',
 'sys',
 'table',
 'text',
 'thetagrids',
 'tick_params',
 'ticklabel_format',
 'tight_layout',
 'time',
 'title',
 'tricontour',
 'tricontourf',
 'tripcolor',
 'triplot',
 'twinx',
 'twiny',
 'uninstall_repl_displayhook',
 'violinplot',
 'viridis',
 'vlines',
 'waitforbuttonpress',
 'warn_deprecated',
 'winter',
 'xcorr',
 'xkcd',
 'xlabel',
 'xlim',
 'xscale',
 'xticks',
 'ylabel',
 'ylim',
 'yscale',
 'yticks']
```
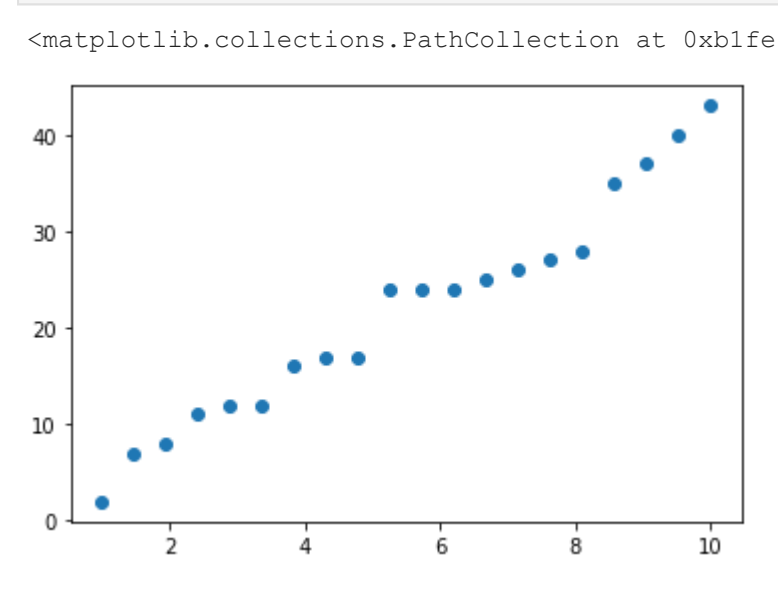

In [20]:
```python
plt.scatter(x,y)
```

Out[20]: <matplotlib.collections.PathCollection at 0xb1fe3d0>



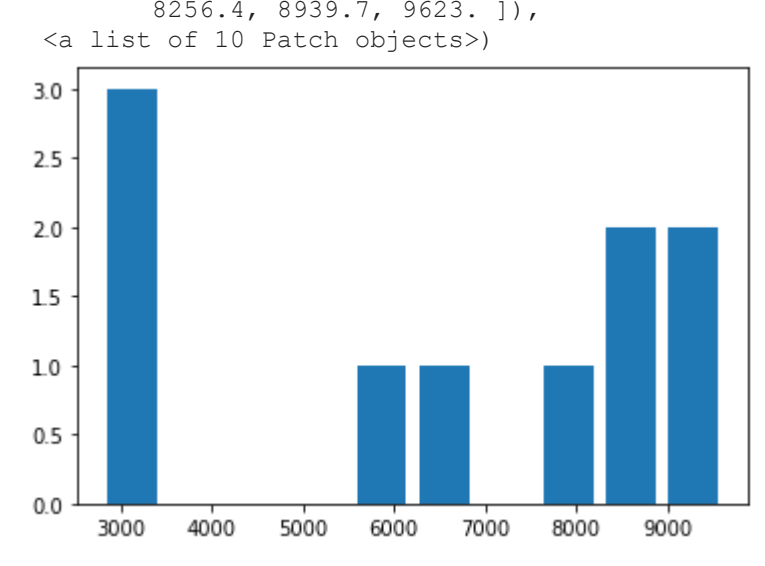
In [ ]:

In [26]:
```python
from random import sample
data =sample(range(1,10000),10)
data
```

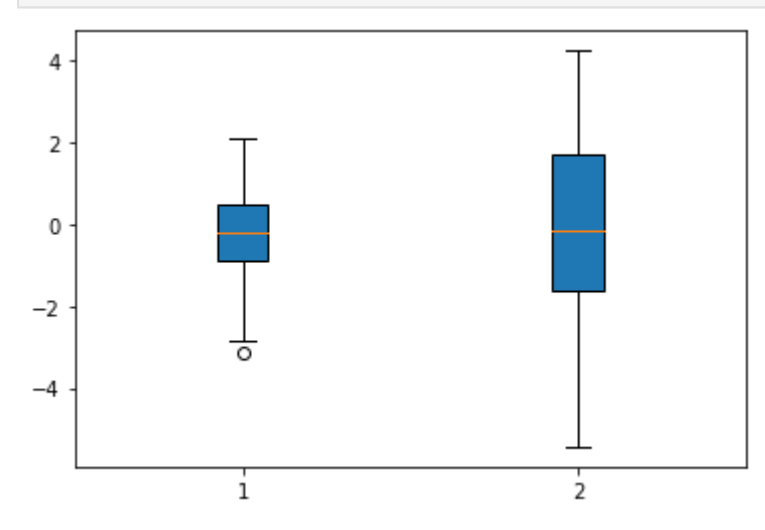
Out[26]: [5767, 2937, 8891, 3256, 9623, 8031, 2790, 6699, 8986, 8877]

In [28]:
```python
plt.hist(data,rwidth = 0.8 )
```

Out[28]:
```
(array([3., 0., 0., 0., 1., 1., 0., 1., 2., 2.]),
 array([2790. , 3473.3, 4156.6, 4839.9, 5523.2, 6206.5, 6889.8, 7573.1,
        8256.4, 8939.7, 9623. ]),
 <a list of 10 Patch objects>)
```



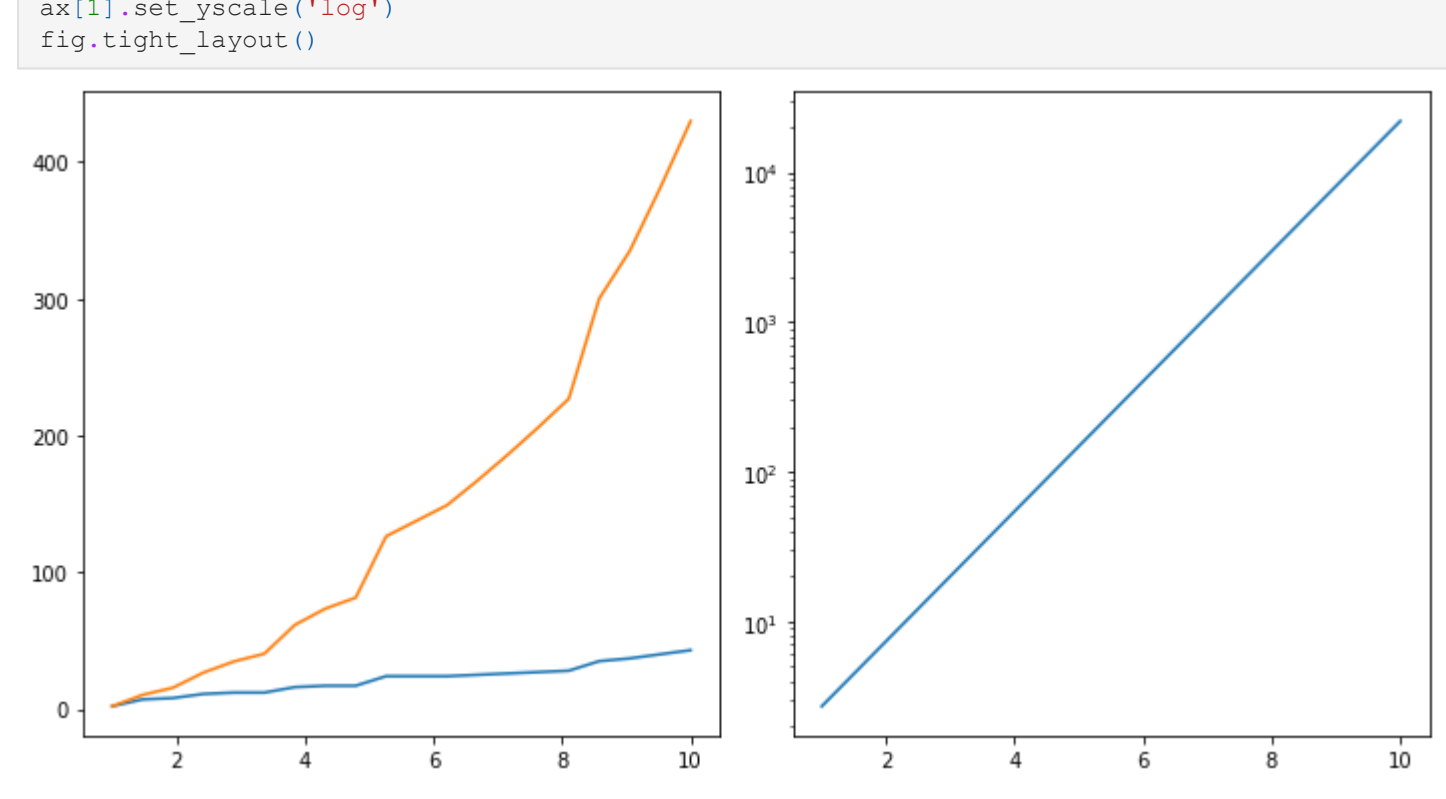
In [30]:
```python
data = [np.random.normal(0,std,100) for std in range(1,3)]
plt.boxplot(data,vert = True,patch_artist =True)
plt.show()
```



In [ ]:
```python
#advance matplotlib concept
```

In [ ]:

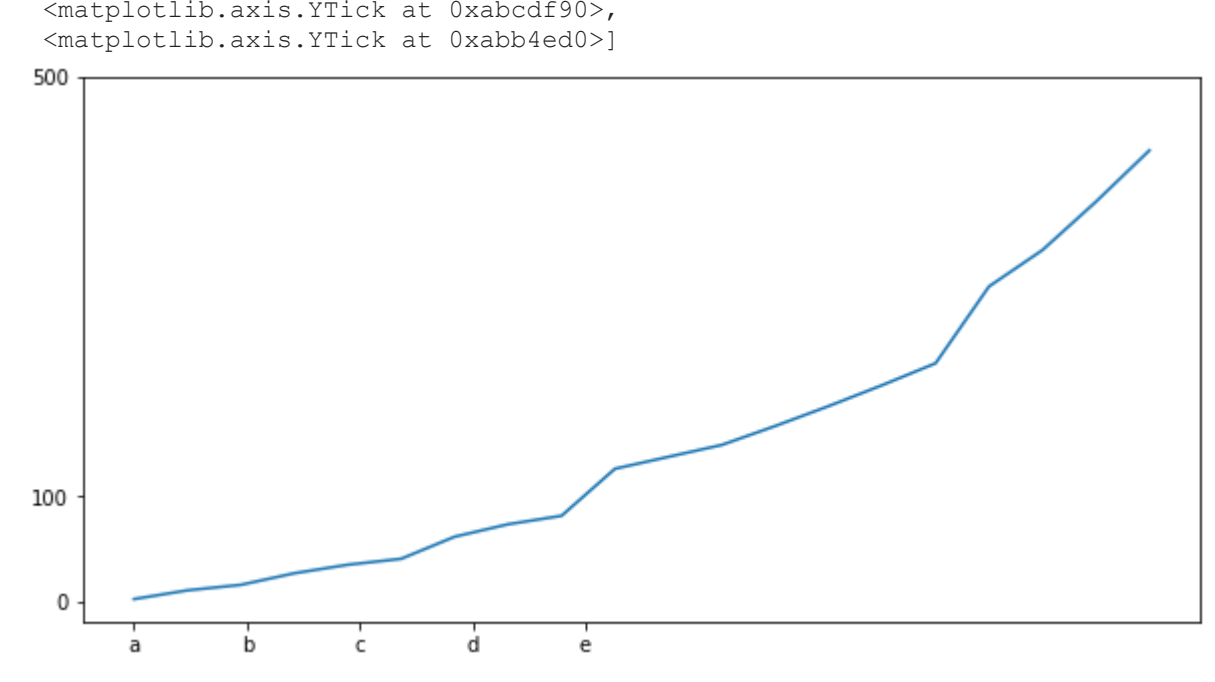
In [35]:
```python
fig, ax = plt.subplots(1,2, figsize = (10,5))
ax[0].plot(x,y,x,y1)
ax[1].plot(x, np.exp(x))
ax[1].set_yscale('log')
fig.tight_layout()
```



In [ ]:

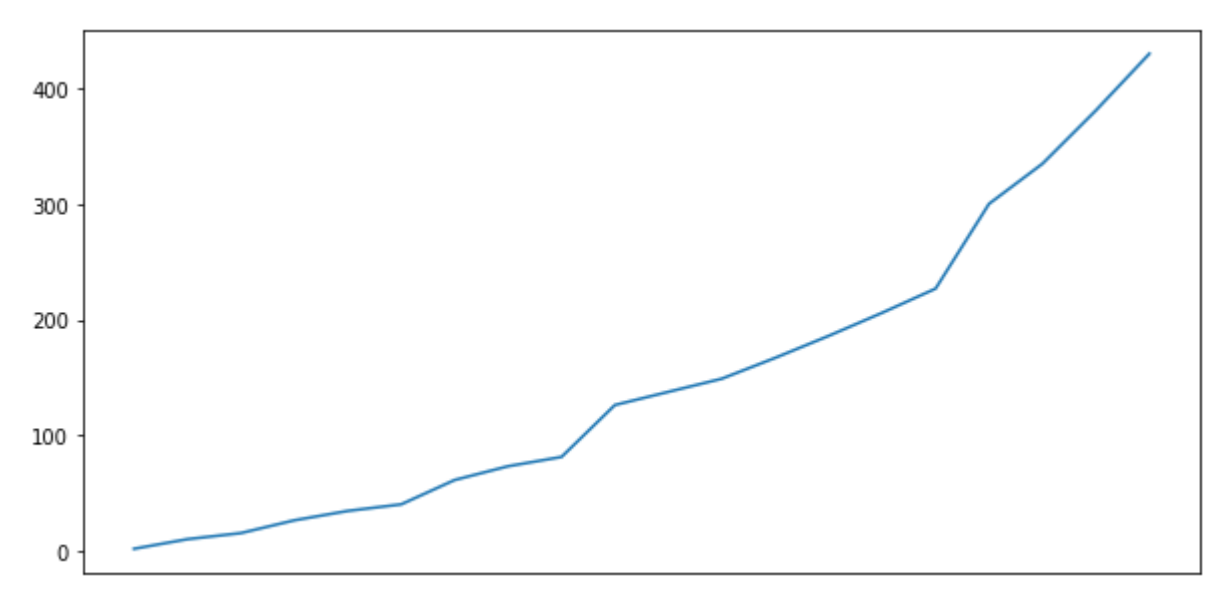
In [46]:
```python
fig,ax = plt.subplots(figsize = (10,5))
ax.plot(x,y1)
ax.set_xticks([1,2,3,4,5])
ax.set_xticklabels([r'a', r'b' , r'c' ,r'd' , r'e'])
ax.set_yticks([0,100,500])
```

Out[46]:
```
[<matplotlib.axis.YTick at 0xabb7b90>,
 <matplotlib.axis.YTick at 0xabcdf90>,
 <matplotlib.axis.YTick at 0xabb4ed0>]
```

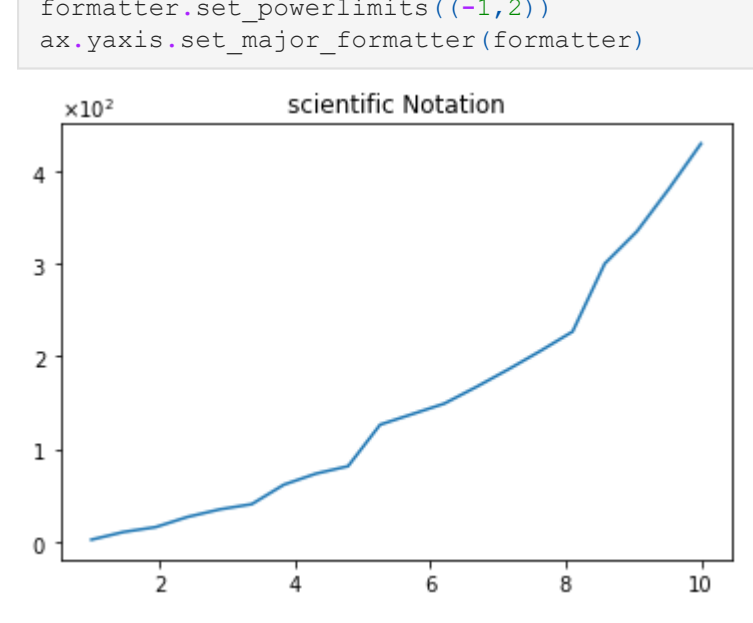


In [38]:
```python
fig,ax = plt.subplots(figsize = (10,5))
ax.plot(x,y1)
ax.set_xticks([ ])
```

Out[38]: []



In [53]:
```python
import matplotlib.ticker as ticker
fig,ax = plt.subplots()
ax.plot(x,y1)
ax.set_title('scientific Notation')

formatter = ticker.ScalarFormatter(useMathText = True)
formatter.set_scientific(True)
formatter.set_powerlimits((-1,2))
ax.yaxis.set_major_formatter(formatter)
```



In [ ]: