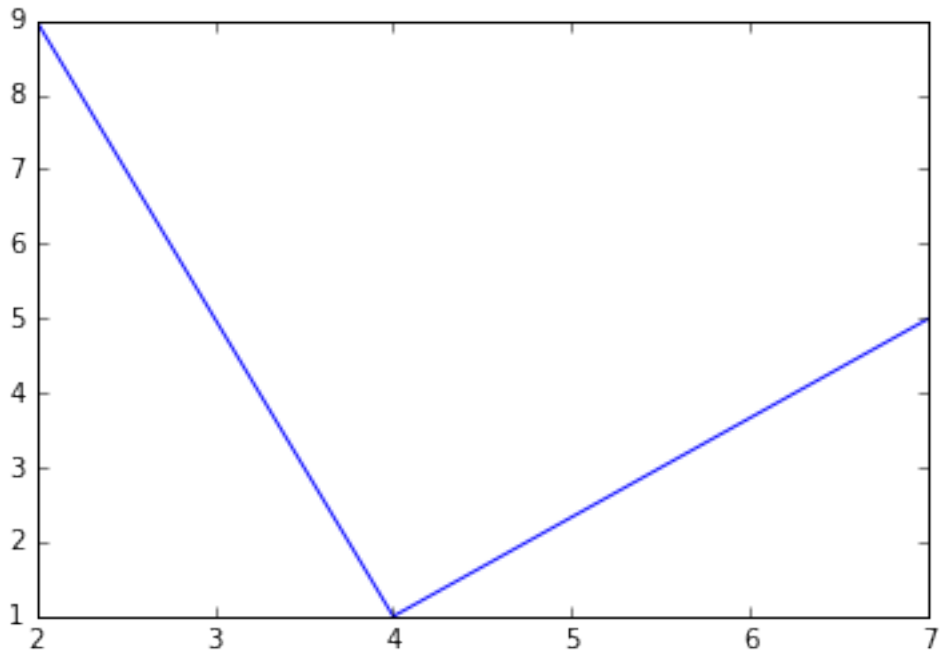
3_Plotting

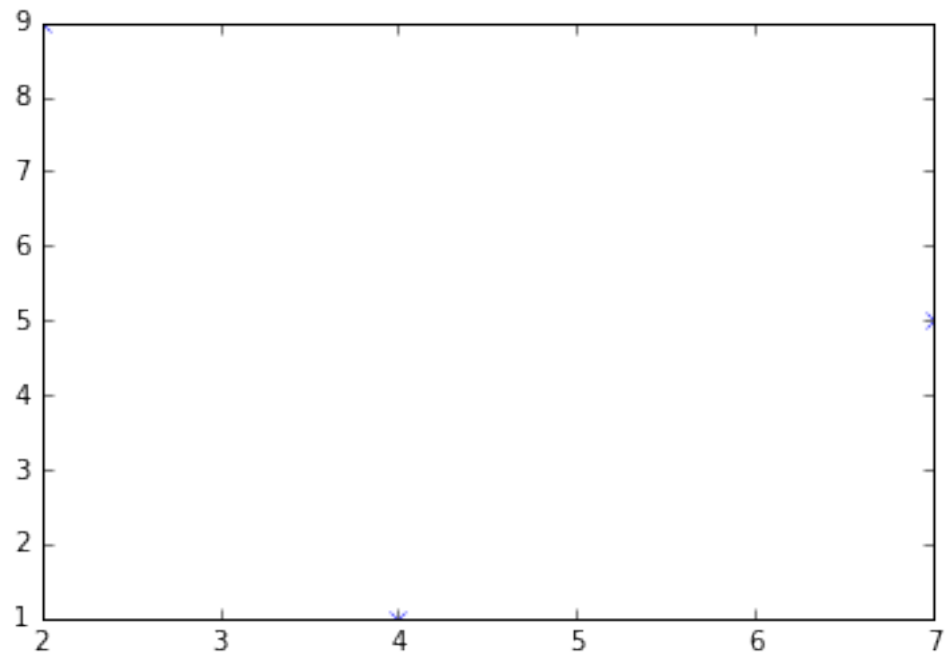
September 29, 2016

In [3]:
```
%matplotlib inline
# (the above is to plot directly in this notebook)
import matplotlib as mpl
import matplotlib.pyplot as plt
import numpy as np
```

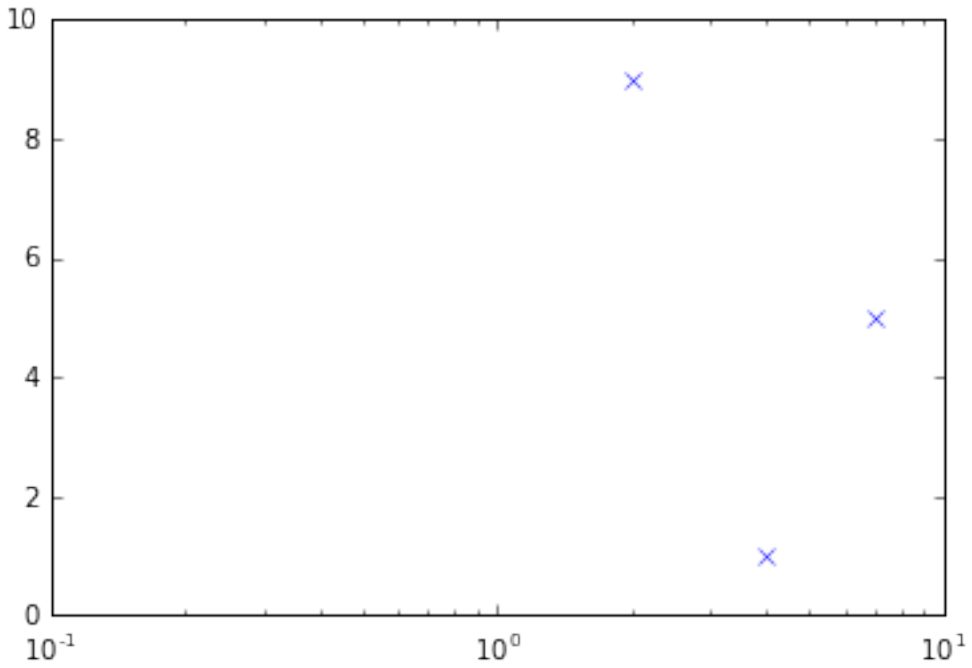
In [4]:
```
# Set up a figure window and plot (object-oriented programming)
fig = plt.figure()
ax1 = fig.add_subplot(111)
x = np.array([2,4,7])
y = np.array([9,1,5])
ax1.plot(x, y)
plt.show()
```



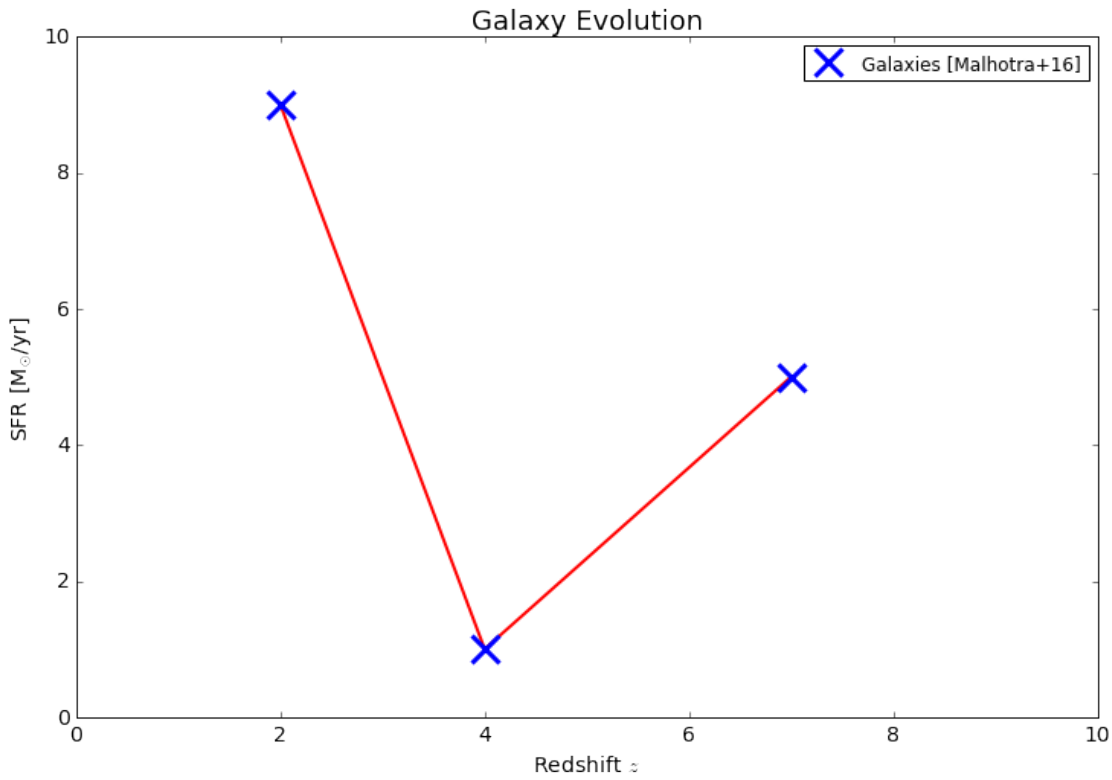
In [5]:
```
# Let's change from default blue lines to crosses:
fig = plt.figure()
ax1 = fig.add_subplot(111)
ax1.plot(x, y,'x')
plt.show()
```



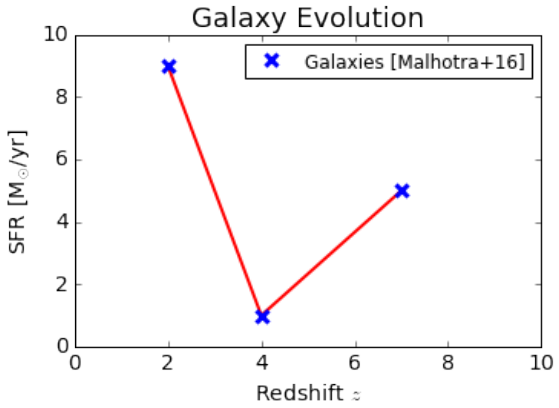
In [6]:
```
# Where are the crosses?! Put some limits on xy axes:
fig = plt.figure()
ax1 = fig.add_subplot(111)
ax1.plot(x, y,'x')
ax1.set_xlim([0.1,10])
ax1.set_ylim([0,10])
ax1.set_xscale('log')
plt.show()
```

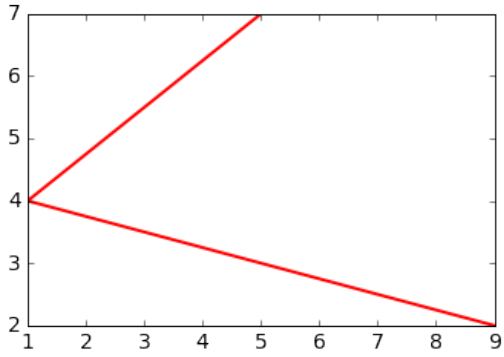


In [11]:
```
# Here is a more 'polished' version, and an example of how to make a grid of plots with subplo
fig = plt.figure(figsize=(12,8))
ax1 = fig.add_subplot(111)
ax1.plot(x, y,'r',lw=2) # LineWidth = 2
ax1.plot(x, y,'x',ms=18,mew=3,label='Galaxies [Malhotra+16]') # MarkerSize = 8, MarkerEdgeWidt
# Set limits on axes
ax1.set_xlim([0,10])
ax1.set_ylim([0,10])
ax1.set_title('Galaxy Evolution',fontsize=18)
ax1.set_xlabel('Redshift $z$',fontsize=14)
ax1.set_ylabel('SFR [M$_{\odot}$/yr]',fontsize=14)
ax1.legend(numpoints=1)
mpl.rcParams['xtick.labelsize'] = 24
mpl.rcParams['ytick.labelsize'] = 24
plt.show(block=False)
```




```
In [14]: # More than one plot in a figure: add_subplot
         fig = plt.figure(figsize=(12,8))
         ax1 = fig.add_subplot(221)
         ax1.plot(x, y,'r',lw=2) # LineWidth = 2
         ax1.plot(x, y,'x',ms=8,mew=3,label='Galaxies [Malhotra+16]') # MarkerSize = 8, MarkerEdgeWidth
         # Set limits on axes
         ax1.set_xlim([0,10])
         ax1.set_ylim([0,10])
         ax1.set_title('Galaxy Evolution',fontsize=18)
         ax1.set_xlabel('Redshift $z$',fontsize=14)
         ax1.set_ylabel('SFR [M$_{\odot}$/yr]',fontsize=14)
         ax1.legend(numpoints=1)
         mpl.rcParams['xtick.labelsize'] = 14
         mpl.rcParams['ytick.labelsize'] = 14
         ax2 = fig.add_subplot(222)
         ax2.plot(y, x,'r',lw=2) # LineWidth = 2
         plt.show(block=False)
```


Galaxy Evolution
Galaxies [Malhotra+16]
SFR [M⊙/yr]
Redshift z
0
2
4
6
8
10


1
2
3
4
5
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7
8
9