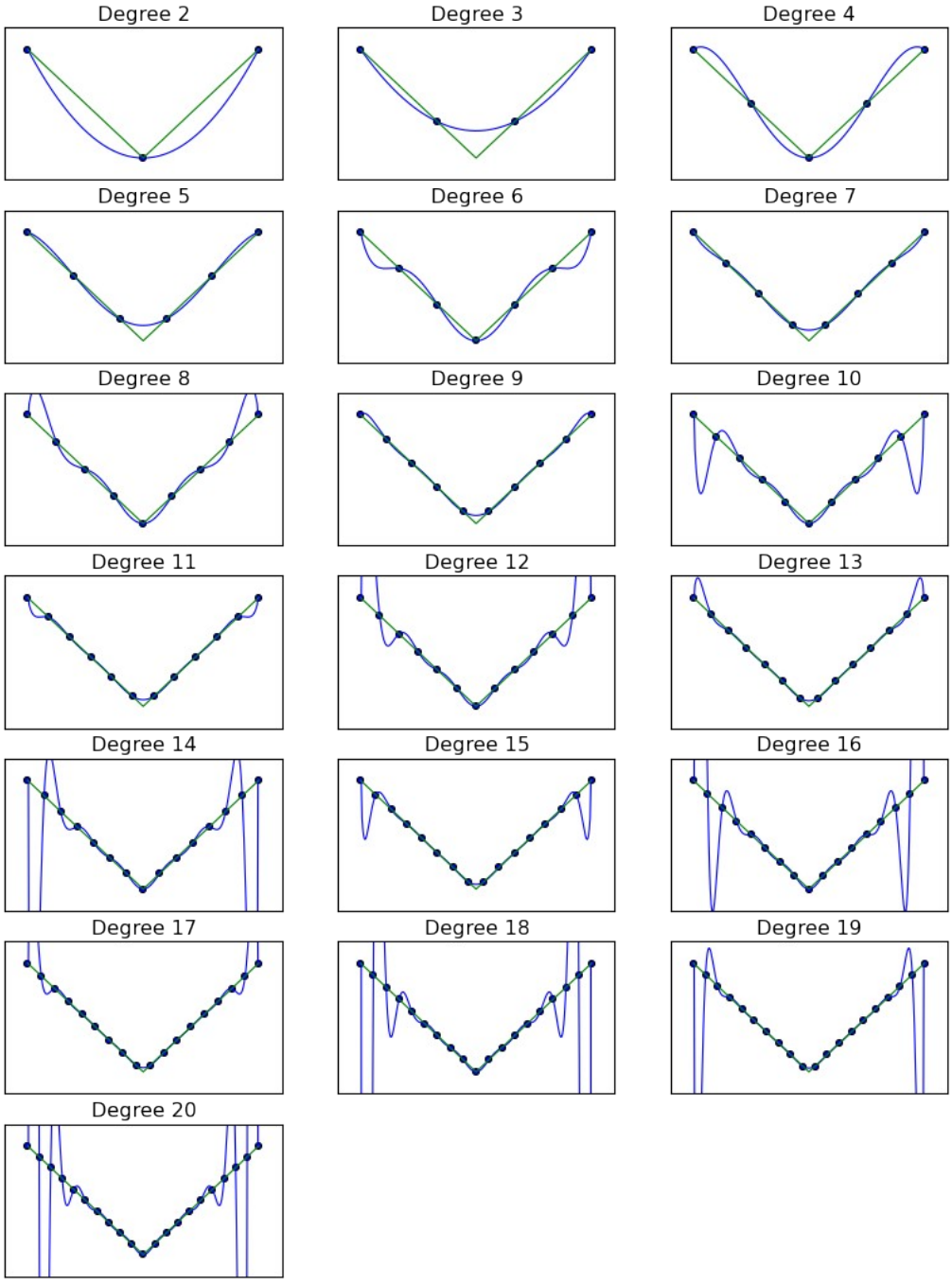
```
 1  import numpy as np
 2  from __future__ import division
 3  import matplotlib.pyplot as plt
 4
 5  def weights(x):
 6      w = []
 7      for i in xrange(len(x)):
 8          temp = x[i] - x
 9          den = temp[temp != 0]
10          w.append(1./np.prod(den))
11      return w
12
13  def barycentric(x,y):
14      w = weights(x)
15      X = np.linspace(min(x),max(x),500)
16      Xv = np.vstack(X)
17      p = lambda a : np.sum(w*y/(a-x))/np.sum(w/(a-x))
18      Y = np.apply_along_axis(p,1,Xv)
19      Y[0] = y[0]
20      Y[-1] = y[-1]
21      return X,Y
22
23  f = lambda x: abs(x)
24  for n in xrange(2,21):
25      plt.subplot(7,3,n-1)
26      plt.title("Degree %d" % n)
27      x = np.linspace(-1,1,n+1)
28      y = f(x)
29      plt.scatter(x,y)
30      X,Y = barycentric(x,y)
31      plt.plot(X,Y)
32      plt.plot([-1,0,1],[1,0,1])
33      plt.axis([-1.2,1.2,-0.2,1.2])
34      plt.gca().get_xaxis().set_ticks([])
35      plt.gca().get_yaxis().set_ticks([])
36  plt.show()
37
```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