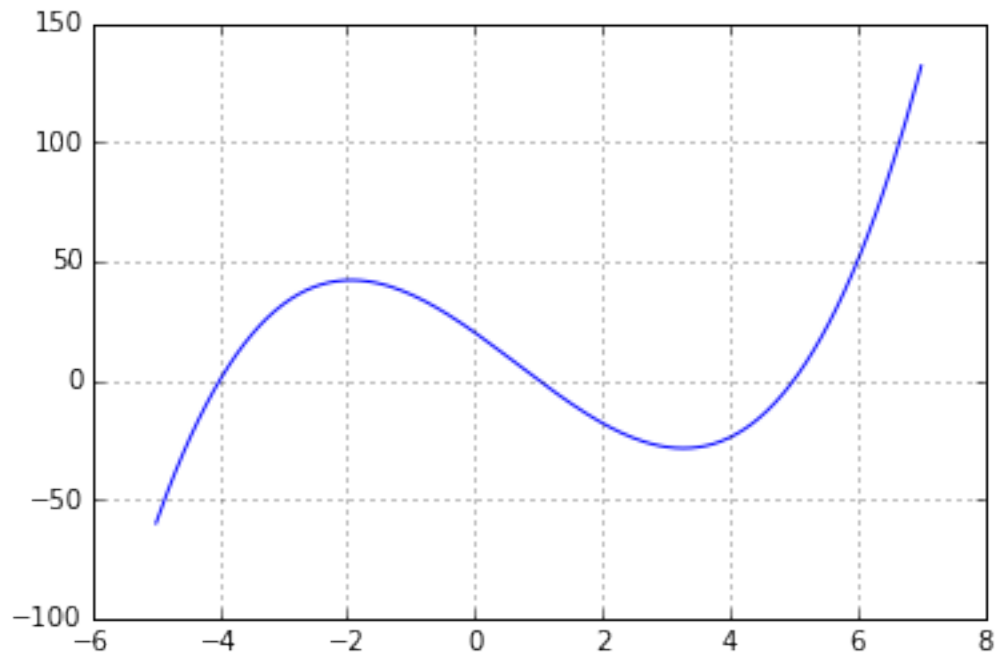


Solution4

October 23, 2015

```
In [1]: %matplotlib inline
```

```
In [2]: import numpy as np
import matplotlib.pyplot as plt
x=np.linspace(-5,7,200)
y=x**3-2*x**2-19*x+20
plt.plot(x,y)
plt.grid(True)
```



```
In [3]: guesses=[-4,1,5]
for i,p in enumerate(guesses):
    x=np.linspace(p-2,p+2,201)
    y=x**3-2.*x**2-19.*x+20.
    index=np.abs(y).argmin()
    print 'Root ',i,' = ',x[index]
```

```
Root 0 = -4.0
Root 1 = 1.0
Root 2 = 5.0
```

```
In [3]:
```