

Fourier

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last edited May 16, 2015, 10:27:34 AM by m24s15

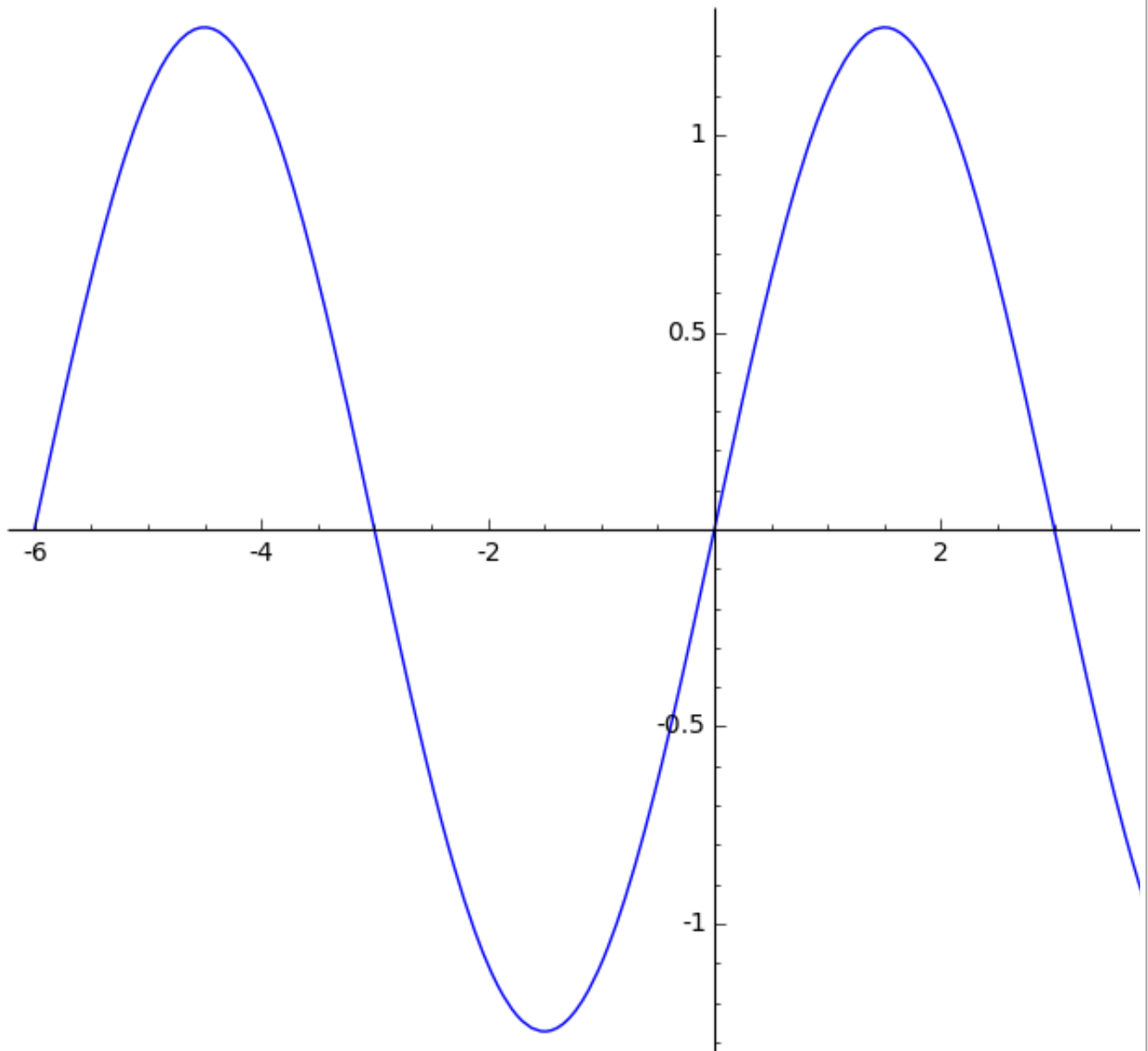
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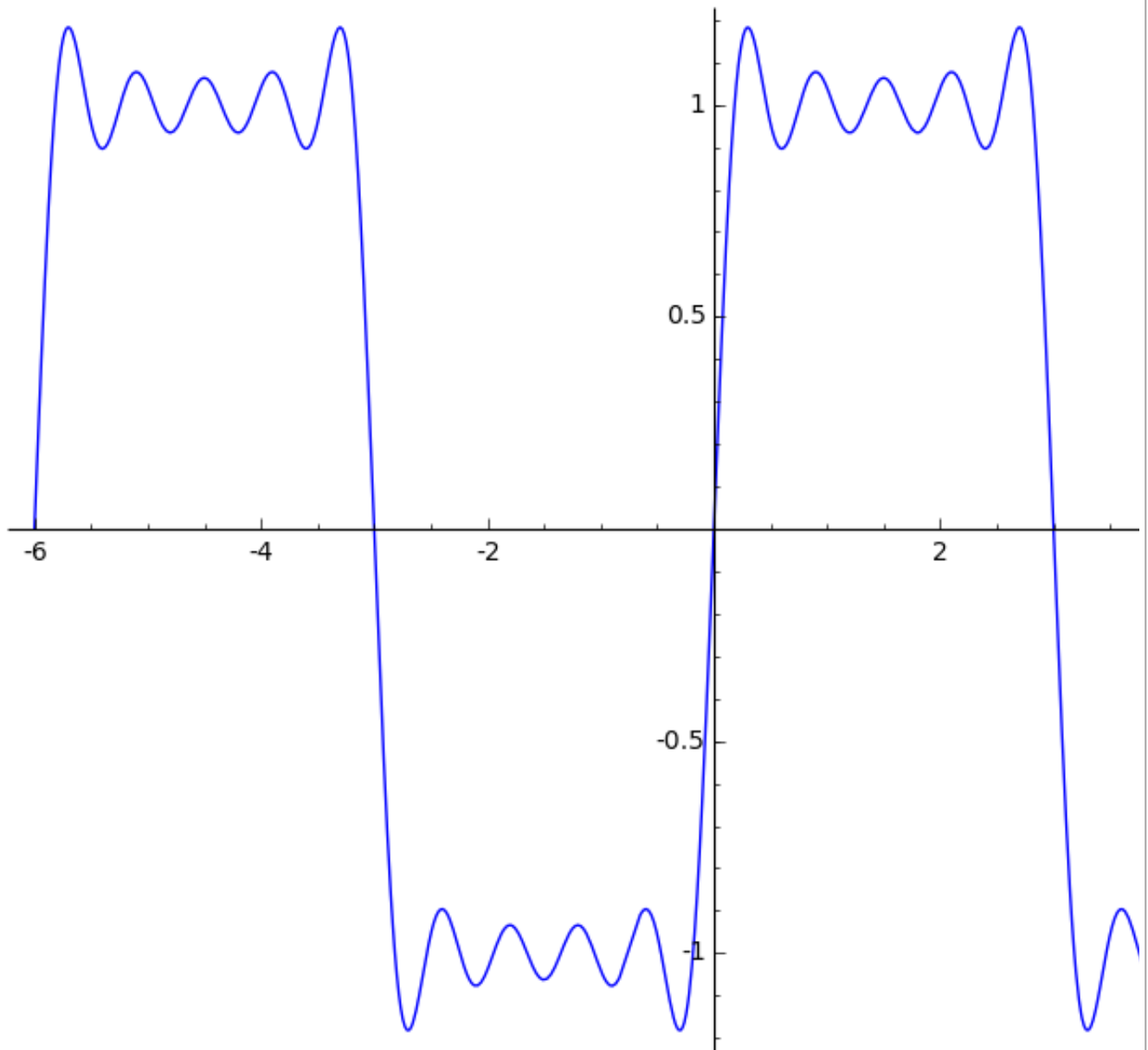
Code below is from

<http://www.walkingrandomly.com/?p=1879>

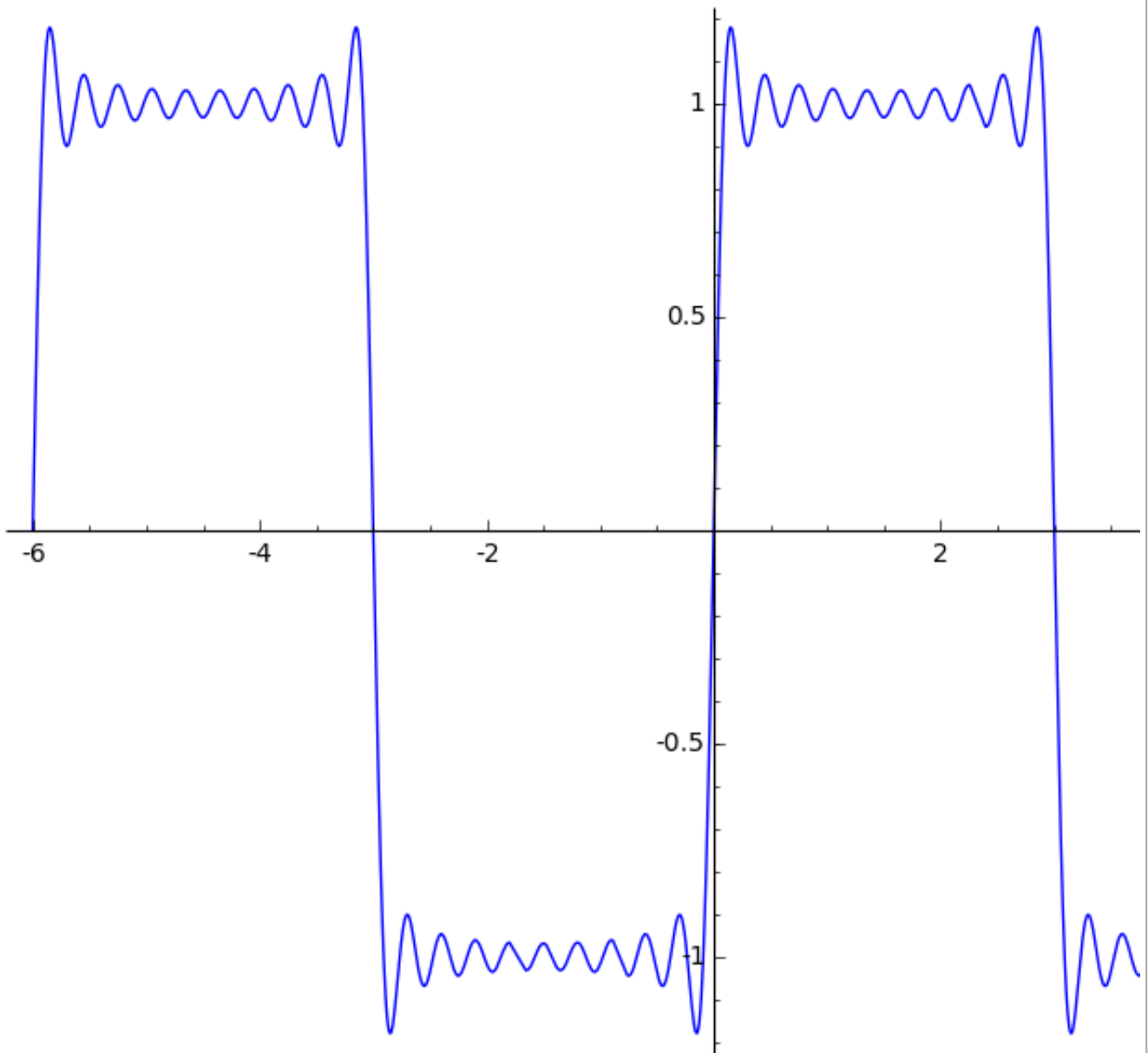
```
def ftermSquare(n):  
    return(1/n*sin(n*x*pi/3))  
  
def fseriesSquare(n):  
    return(4/pi*sum(ftermSquare(i) for i in range (1,2*n,2)))
```



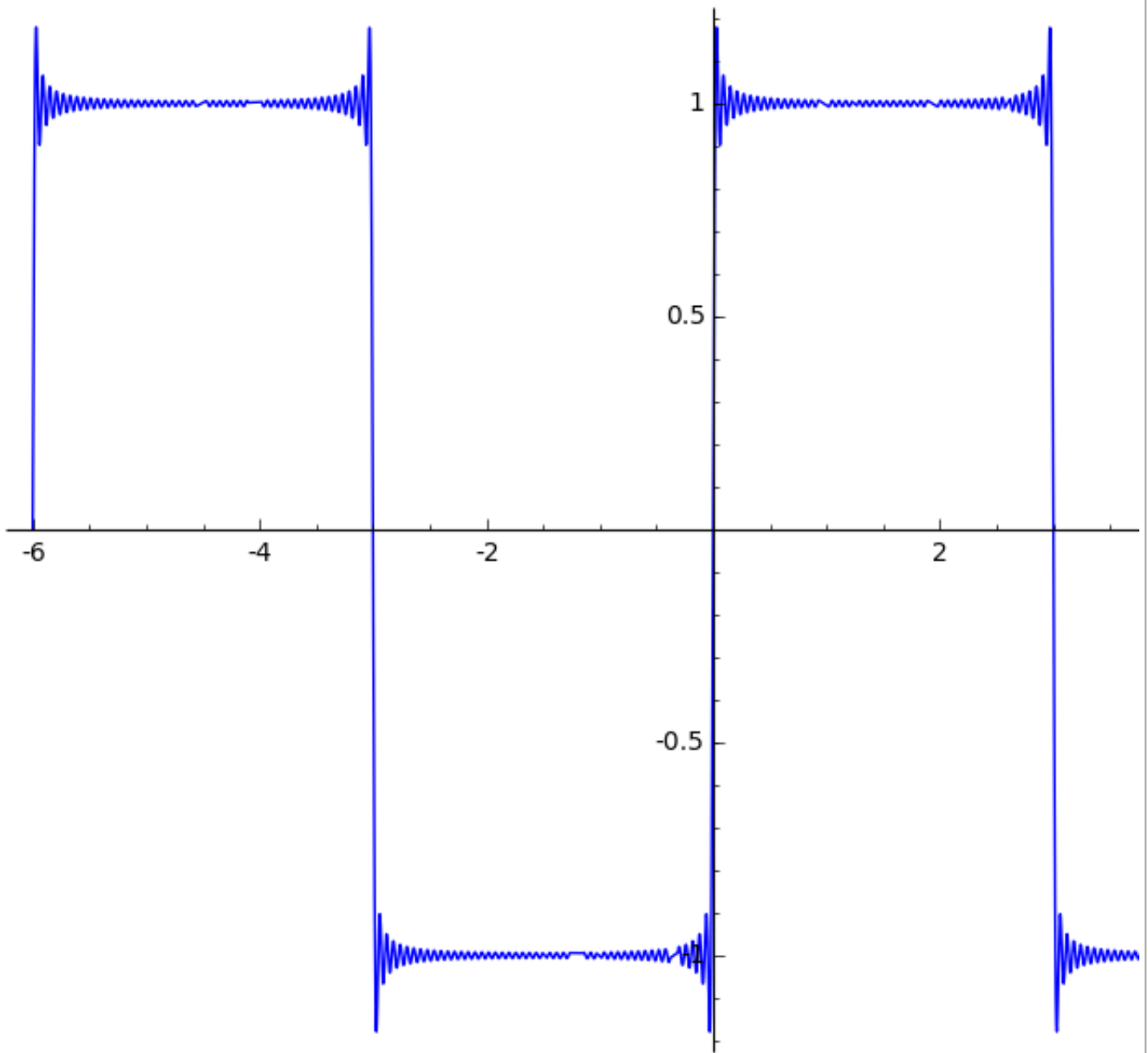
```
show(plot(fseriesSquare(5),x,-6,6,plot_points=100))
```



```
show(plot(fseriesSquare(10), x, -6, 6, plot_points=100))
```



```
show(plot(fseriesSquare(50), x, -6, 6, plot_points=200))
```



```

def ftermSquare(n):
    return(1/n*sin(n*x*pi/3))

def ftermSawtooth(n):
    return(1/n*sin(n*x*pi/3))

def ftermParabola(n):
    return((-1)^n/n^2 * cos(n*x))

def fseriesSquare(n):
    return(4/pi*sum(ftermSquare(i) for i in range (1,2*n,2)))

def fseriesSawtooth(n):
    return(1/2-1/pi*sum(ftermSawtooth(i) for i in range (1,n)))

def fseriesParabola(n):
    return(pi^2/3 + 4*sum(ftermParabola(i) for i in range(1,n)))

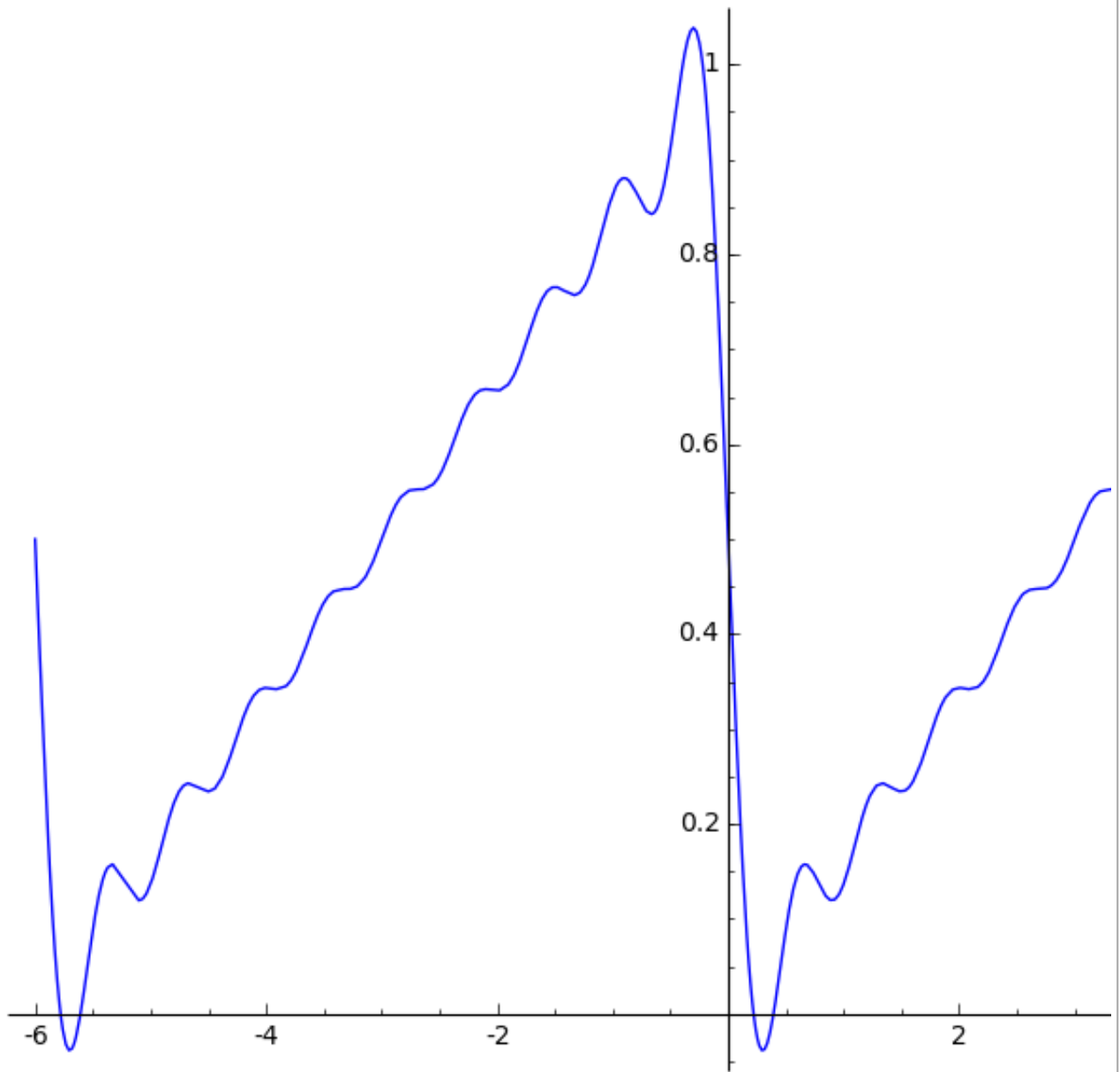
@interact
def plotFourier(n=slider(1, 30,1,10,'Number of terms')
,plotpoints=('Value of plot_points',[100,500,1000]),Function=
['Saw Tooth','Square Wave','Periodic Parabola']):

```

Number of terms 10

Value of plot_points

Function



Horizontal scrollbar and text input field.

