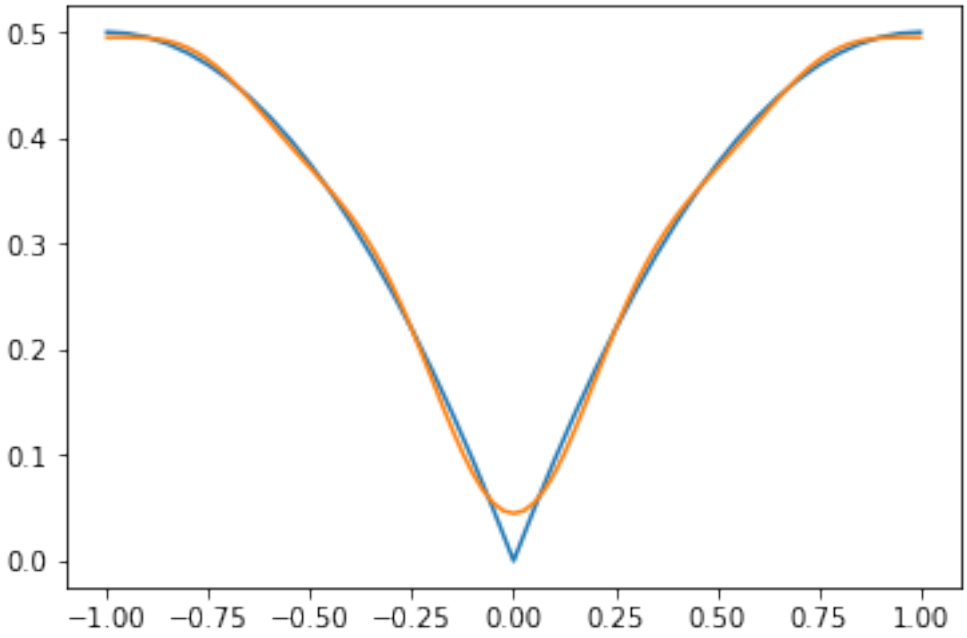
Furye_raw_examples

April 17, 2019

In [26]:
```
import matplotlib.pyplot as plt
import math
```

In [69]:
```
#create y = x - x^2 / 2 on the segment [0, 1] and then continue it by even way
x_arr, y_arr = [], []

for slider in range(-1, 1):
    if slider % 2 == 0:
        for i in range(0, 21):
            x = slider + i/20.
            x_arr.append(x)
            y_arr.append(x - x**2 / 2)
    else:
        for i in range(0, 21):
            x = slider + i/20.
            x_arr.append(x)
            y_arr.append(-x - x**2 / 2)

#there we create Furye raw arrays
# x - x^2 /2 ~ 1/6 + sum[2/(pi^2*n ^2) * cos(pi*n*x)]

fx_arr, fy_arr = [], []
pi = 3.1415

for slider in range(-1, 1):
    for i in range(0, 41):
        x = slider + i/40.
        fx_arr.append(x)
        f_sum = 1/3.
        for n in range(1, 5):
            f_sum = f_sum - 2/(pi*n)**2 * (math.cos(pi*n*x))
        fy_arr.append(f_sum)

plt.plot(x_arr, y_arr)
plt.plot(fx_arr, fy_arr)
```

Out[69]:
```
[<matplotlib.lines.Line2D at 0x7f9b33750a50>]
```



In [ ]: