

This is from the "Physical Example", Section 3.3- We'll take $L=1$ for the plot.

```
> F1:=(400/Pi)*sin(Pi*x);
```

$$F1 := \frac{400 \sin(\pi x)}{\pi} \quad (1)$$

```
> F2:=(400/Pi)*sum((sin((2*k-1)*Pi*x))/(2*k-1),k=1..2);
```

$$F2 := \frac{400 \left(\sin(\pi x) + \frac{1}{3} \sin(3 \pi x) \right)}{\pi} \quad (2)$$

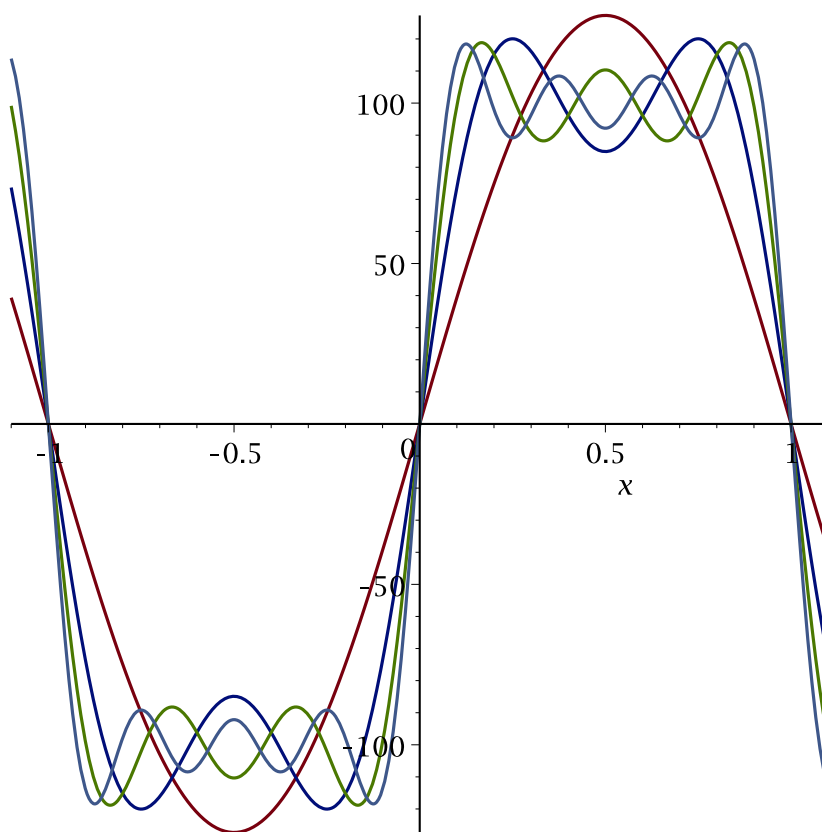
```
> F3:=(400/Pi)*sum((sin((2*k-1)*Pi*x))/(2*k-1),k=1..3);
```

$$F3 := \frac{400 \left(\sin(\pi x) + \frac{1}{3} \sin(3 \pi x) + \frac{1}{5} \sin(5 \pi x) \right)}{\pi} \quad (3)$$

```
> F4:=(400/Pi)*sum((sin((2*k-1)*Pi*x))/(2*k-1),k=1..4);
```

$$F4 := \frac{400 \left(\sin(\pi x) + \frac{1}{3} \sin(3 \pi x) + \frac{1}{5} \sin(5 \pi x) + \frac{1}{7} \sin(7 \pi x) \right)}{\pi} \quad (4)$$

```
> plot([F1,F2,F3,F4],x=-1.1..1.1);
```



```
> F20:=(400/Pi)*sum((sin((2*k-1)*Pi*x))/(2*k-1),k=1..20);
```

$$F20 := \frac{1}{\pi} \left(400 \left(\sin(\pi x) + \frac{1}{3} \sin(3\pi x) + \frac{1}{5} \sin(5\pi x) + \frac{1}{7} \sin(7\pi x) \right. \right. \quad (5)$$

$$\left. + \frac{1}{9} \sin(9\pi x) + \frac{1}{11} \sin(11\pi x) + \frac{1}{13} \sin(13\pi x) + \frac{1}{15} \sin(15\pi x) \right.$$

$$\left. + \frac{1}{17} \sin(17\pi x) + \frac{1}{19} \sin(19\pi x) + \frac{1}{21} \sin(21\pi x) + \frac{1}{23} \sin(23\pi x) \right.$$

$$\left. + \frac{1}{25} \sin(25\pi x) + \frac{1}{27} \sin(27\pi x) + \frac{1}{29} \sin(29\pi x) + \frac{1}{31} \sin(31\pi x) \right.$$

$$\left. + \frac{1}{33} \sin(33\pi x) + \frac{1}{35} \sin(35\pi x) + \frac{1}{37} \sin(37\pi x) + \frac{1}{39} \sin(39\pi x) \right) \Bigg)$$

```
> plot(F20,x=-1.1..1.1);
```

