```
> # FOURIER COSINE SERIES OF A TRIANGLE WAVE

> # f(x) = |x|  on (-Pi,Pi); f is periodic with period 2*Pi.

> aodd := k -> 1/(2*k + 1)^2;
```

$$aodd := k \to \frac{1}{(2k+1)^2} \tag{1}$$

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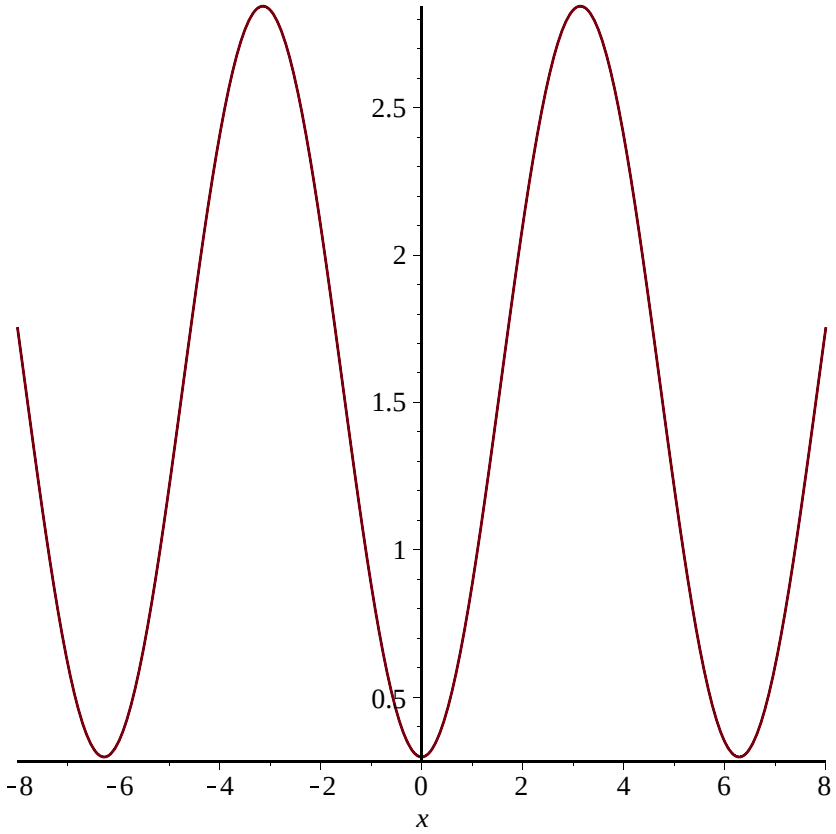
> partialsum := K -> (Pi/2) - (4/Pi)*sum(aodd(k)*cos((2*k+1)*x), k=
  0..K);
```

$$partialsum := K \to \frac{1}{2}\pi - \frac{4\left(\sum_{k=0}^{K} aodd(k)\cos((2k+1)x)\right)}{\pi} \tag{2}$$

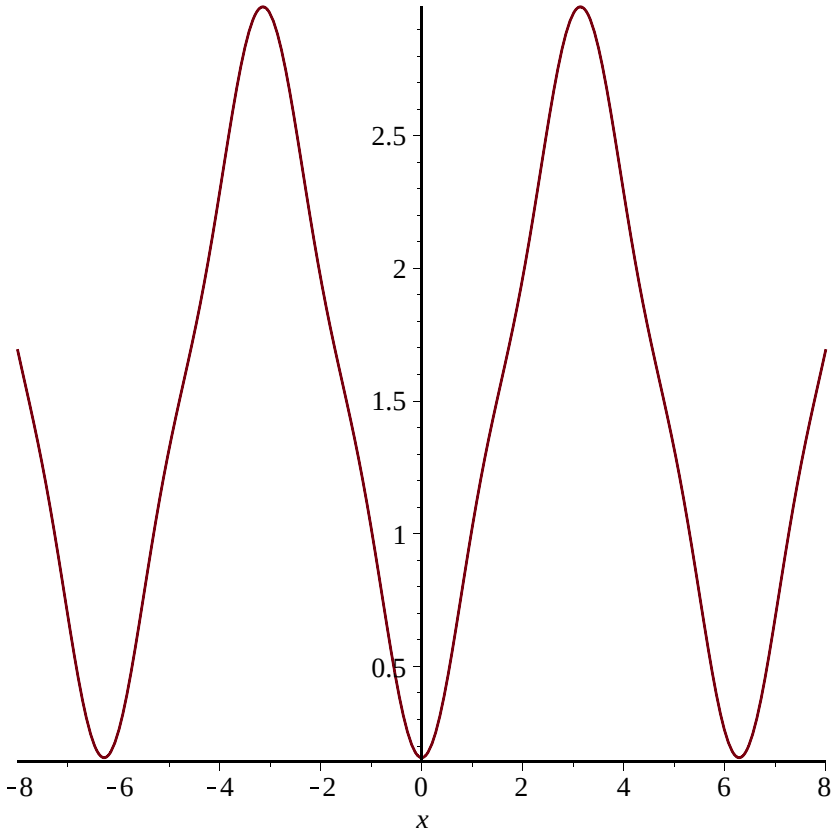
```
> plot(partialsum(0), x=-8..8);
```



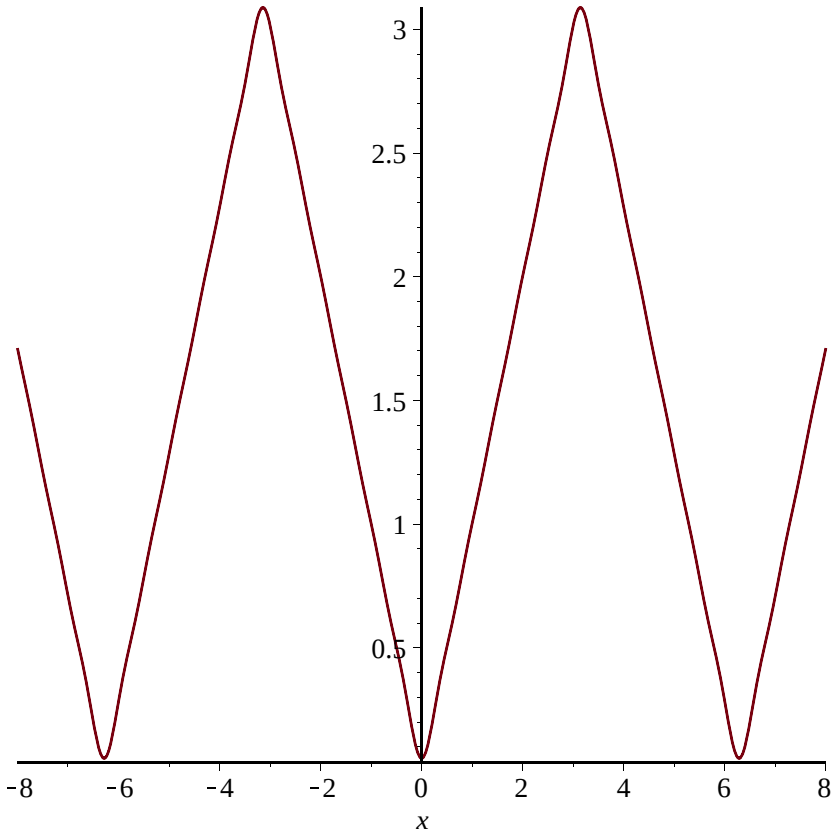

```
> partialsum(0);
```

$$\frac{1}{2}\pi - \frac{4\cos(x)}{\pi} \tag{3}$$

```
> plot(partialsum(1), x=-8..8);
```




```
> plot(partialsum(5), x=-8..8);
```

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> plot(partialsum(20), x=-8..8);
```

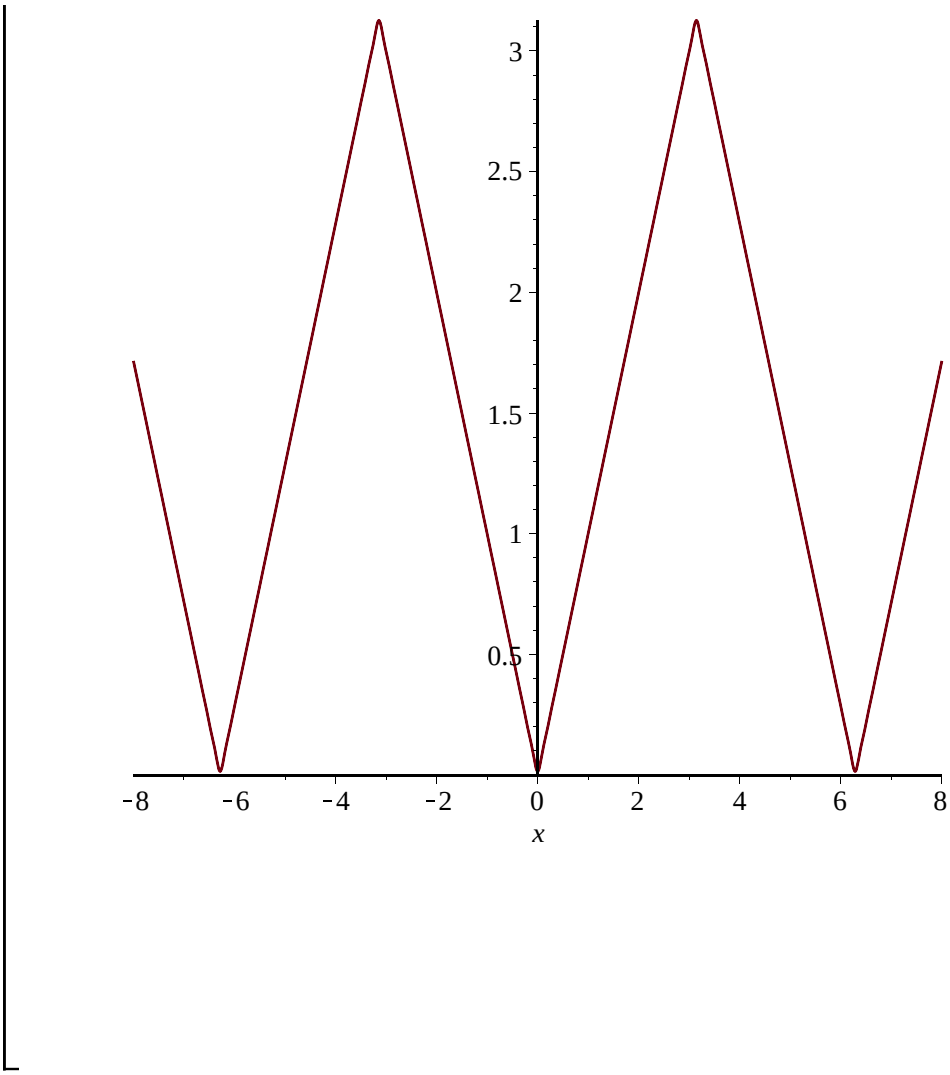
3
2.5
2
1.5
1
0.5
-8
-6
-4
-2
0
2
4
6
8
x