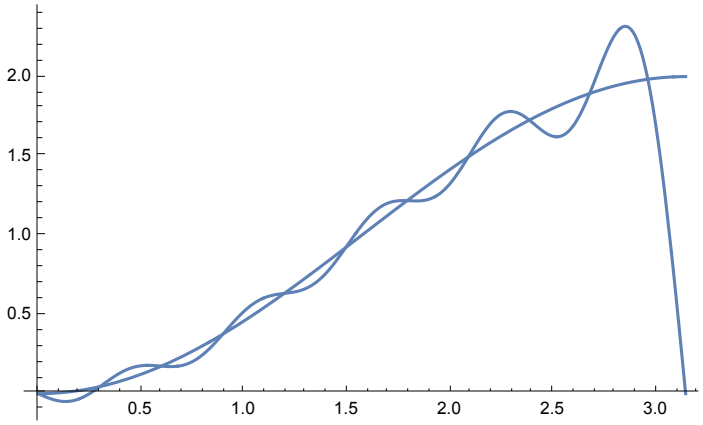
```
acoeff[n_] := 2 / Pi * Integrate[(1 - Cos[x]) * Sin[n * x], {x, 0, Pi}];

acoeff[1]
```

$$\frac{4}{\pi}$$

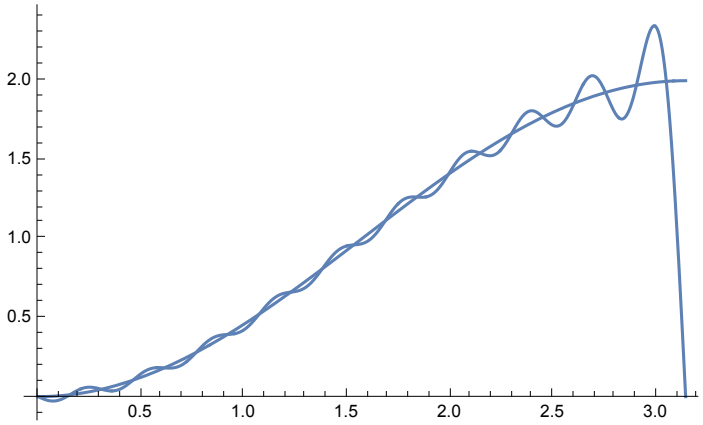
```
acoeff[n]
```

$$\frac{2\left(-1+\text{Cos}[n\,\pi]-2\,n^2\,\text{Cos}[n\,\pi]\right)}{\left(-n+n^3\right)\,\pi}$$

```
nterms = 10;
Show[Plot[4 / Pi * Sin[x] + Sum[acoeff[n] * Sin[n * x], {n, 2, nterms}], {x, 0, Pi}],
 Plot[1 - Cos[x], {x, 0, Pi}]]
```




```
nterms = 20;
Show[Plot[4 / Pi * Sin[x] +
    Sum[(2 * (-1) ^n - 4 * n^2 * (-1) ^n - 2) / (Pi * (n^3 - n)) * Sin[n * x], {n, 2, nterms}],
  {x, 0, Pi}], Plot[1 - Cos[x], {x, 0, Pi}]]
```



```
nterms = 100;
Show[Plot[4 / Pi * Sin[x] +
    Sum[(2 * (-1) ^n - 4 * n^2 * (-1) ^n - 2) / (Pi * (n^3 - n)) * Sin[n * x], {n, 2, nterms}],
  {x, 0, Pi}], Plot[1 - Cos[x], {x, 0, Pi}]]
```