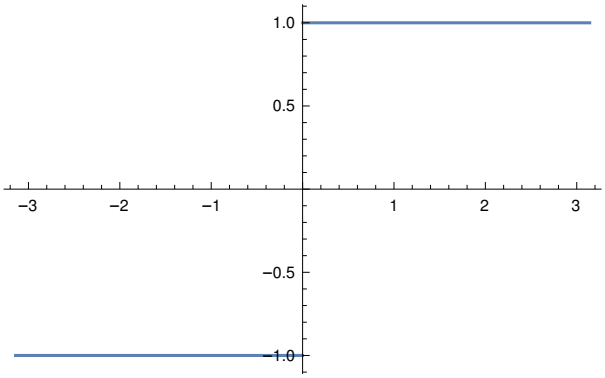
In[1]:=
```
f[x_] = Piecewise[{{-1, -Pi ≤ x < 0}, {0, x == 0}, {1, 0 < x ≤ Pi}}];
```

In[2]:=
```
Plot[f[x], {x, -Pi, Pi}]
```

Out[2]=



In[58]:=
```
FourierCosCoefficient[f[x], x, n](* Zero, since f[x] is odd. *)
FourierSinCoefficient[f[x], x, n]
```

Out[58]=
```
0
```

Out[59]=
$$-\frac{2\,(-1+(-1)^n)}{n\,\pi}$$

In[57]:=
```
Manipulate[
 Plot[{f[x], Evaluate[FourierSeries[f[x], x, n]]}, {x, -Pi, Pi}],
 {{n, 18, "Iteration Limit"}, 2, 32, 2, Appearance → "Labeled"}
 (* TODO: Add series caching with DynamicModule. *)
]
```

Out[57]=