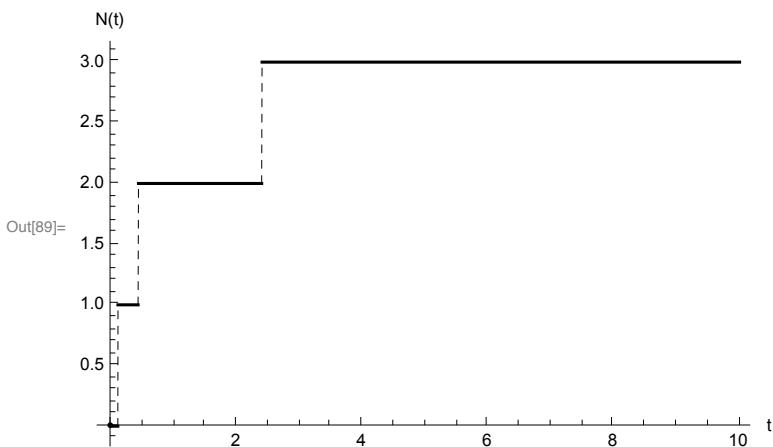


Exercise 1.82

```
In[84]:= tsim = 10;
λ[t_] = 1 / (t^2 + 1);
path = RandomFunction[InhomogeneousPoissonProcess[λ[t], t], {0, tsim}];
f = path[ "PathFunction"];
jumps = path[ "Times"];

Plot[f[t], {t, 0, tsim}, Exclusions → jumps,
  ExclusionsStyle → Dashed, AxesLabel → {"t", "N(t)"}, PlotStyle → Black]
```

```
 $\mathcal{P}$  = InhomogeneousPoissonProcess[λ[t], t];
Mean[ $\mathcal{P}$ [t]]
PDF[PoissonDistribution[Mean[ $\mathcal{P}$ [ $\sqrt{2} - 1$ ]]], 2] *
  CDF[PoissonDistribution[Mean[ $\mathcal{P}$ [1]] - Mean[ $\mathcal{P}$ [ $\sqrt{2} - 1$ ]]], 1] // N
```



Out[91]= ArcTan[t]

Out[92]= 0.0489613