3.8 Modes of Convergence

uniform convergence
a.e. convergence
convergence in L^1
convergence in measure

4 examples

1. $f_n = n^{-1}\chi_{(0,n)}$
2. $f_n = \chi_{(n,n+1)}$
3. $f_n = n\chi_{[0,\frac{1}{n}]}$
4. $f_1 = \chi_{[0,1]}$

   $f_2 = \chi_{[0,\frac{1}{2}]}$, $f_3 = \chi_{[\frac{1}{2},1]}$

   $f_4 = \chi_{[0,\frac{1}{4}]}$, $f_5 = \chi_{[\frac{1}{4},\frac{1}{2}]}$, $f_6 = \chi_{[\frac{1}{2},\frac{3}{4}]}$, $f_7 = \chi_{[\frac{3}{4},1]}$

   ...

   $f_n = \chi_{[\frac{j}{2^k},\frac{j+1}{2^k}]}$, $n = 2^k + j$, $0 \le j < 2^k$.