Quiz Math 483

Determine where the series $\sum f_n$ converges pointwise and where it converges uniformly, if $f_n(x)$ is defined as:

(a) $f_n(x) = \frac{1}{x^2+n^2}$

(b) $f_n(x) = \frac{1}{x^n+1}, \quad x > 0$

(c) $f_n(x) = \frac{(-1)^n}{n+|x|}$

(d) $f_n(x) = \frac{1}{(1+n^2x^2)}$