Practice Chart - Solutions

You may use $+\infty$ or $-\infty$ or DNE as appropriate.
Curly braces indicate sequences.

Notations:

- C = Convergent
- AC = Absolutely Convergent
- CC = Conditionally Convergent
- D = Divergent

a_n	$\lim_{n\to\infty} a_n$	$\{a_n\}$ **C or D**	$\lim_{n\to\infty}(-1)^n a_n$	$\{(-1)^n a_n\}$ **C or D**	$\sum a_n$ **AC, CC, or D**	$\sum(-1)^n a_n$ **AC, CC, or D**
$\frac{2n}{n+2}$	2	C	DNE	D	D	D
$\frac{3^n}{n^2}$	∞	D	DNE	D	D	D
$\left(\frac{2n+8}{n^2}\right)^n$	0	C	O	C	AC	AC
$\frac{n}{n^2+3}$	0	C	O	C	D	CC
$\frac{n!}{100^n}$	∞	D	DNE	D	D	D
$\frac{1}{1+\ln n}$	0	C	0	C	D	CC
$5\left(\frac{3}{4}\right)^n$	0	C	0	C	AC	AC
$\frac{10^n}{n!}$	0	C	0	C	AC	AC