

10.6 #11

$$\sum \frac{(-1)^n e^{1/n}}{n^3}$$

$$e^{1/n} = e^{-n}$$

$$b_n = \frac{e^{1/n}}{n^3} < \frac{e}{n^3}$$

POSITIVE, DECREASING

P-SERIES
 $p=3 > 1$ CONVERGES

$$\sum \left| \frac{(-1)^n e^{1/n}}{n^3} \right| = \sum \frac{e^{1/n}}{n^3}$$

CONVERGES, SO \rightarrow BY COMPARISON

$$\sum \frac{(-1)^n e^{1/n}}{n^3}$$

ABSOLUTELY
CONVERGENT

AND THUS CONVERGENT

#5

$$\sum \frac{(-1)^{n+1}}{\sqrt[4]{n}}$$

$$\sum \left| \frac{(-1)^{n+1}}{\sqrt[4]{n}} \right| = \frac{1}{\sqrt[4]{n}} = b_n$$

LLN
 $n \rightarrow \infty$ $b_n = 0$

$b_n > 0$ (POSITIVE)
AND DECREASING

THESE SAID
THAT
 $\sum \frac{(-1)^{n+1}}{\sqrt[4]{n}}$

CONVERGES.

$$\sum \frac{1}{\sqrt[4]{n}} = \sum \frac{1}{n^{1/4}}$$

P-SERIES $p = \frac{1}{4} \leq 1$ DIVERGE

THIS
SHOWS
POSITIVES
DON'T CONVERGE

CONDITIONALLY CONVERGENT (LIKE ME)
(HARMONIC)