MATH 426

11.1 8.

$a_1 = \frac{-1}{2}$ $\quad a_2 = \frac{2}{3}$ $\quad a_3 = \frac{-3}{7}$

$a_4 = \frac{4}{25}$ $\quad a_5 = \frac{-5}{121}$

14.

$\left\{ \frac{4}{1}, \frac{-1}{1}, \frac{1}{4}, \frac{-1}{16}, \frac{1}{64} \right\}$

$(-4)^{\cancel{1}-n}$ $\quad a_n = \cancel{-1^n}$ ~~[illegible]~~

$(-1)^{n+1}\ 4^{2-n}$

26.

$a_n = 2 + (0.86)^n \rightarrow$ converges on 2

32.

$a_n = \cos\left(\frac{n\pi}{n+1}\right)\frac{1/n}{1/n}$ $\quad \left(\frac{\pi}{1+\frac{1}{n}}\right)$ $\quad \frac{\pi}{1+0}$ $\quad \frac{\pi}{1}$ converges on 1

36.

$a_n = \left(\frac{(-1)^{n+1}\ n}{n+\sqrt{n}}\right)\frac{\frac{1}{n}}{1/n}$ $\quad \frac{(-1)^{n+1}}{1+\frac{\sqrt{n}}{n}}$ $\quad \frac{(-1)^{n+1}}{\cancel{1+0}}$ ONE

$\frac{n^{1/2}}{n^1}$ $\quad \frac{1}{n^{1/2}} \rightarrow \frac{1}{\infty} \rightarrow 0$

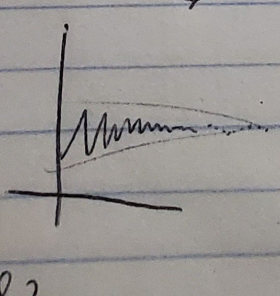
50. $a_n = \frac{(\ln n)^2}{n}$ $\cancel{\frac{1/n}{1/n}}$ converges on 0

76. $a_n = 2 + \frac{(-1)^n}{n}$ $\quad f(x) = 2 + \frac{(-1)^x}{x}$ ~~[illegible]~~

$2 + \frac{(-1)}{1} = 1$ $\quad \frac{2+1}{2} = \cancel{4}\ 2\frac{1}{2}$ $\quad 2 + \frac{-1}{3} = 1\frac{2}{3}$

$2 + \frac{1}{4} = 2\frac{1}{4}$ $\quad 2 + \frac{-1}{5} = 1\frac{4}{5}$ $\quad 2 + \frac{1}{6} = 2\frac{1}{6}$

$2 + \frac{-1}{7} = 1\frac{6}{7}$ $\quad 2 + \frac{1}{8} = 2\frac{1}{8}$ $\quad 2 + \frac{-1}{9} = 1\frac{8}{9}$



bounded

82.

MATH 426

11.2 6.

$$\frac{1}{\sqrt[3]{n}}\left(\frac{n^3}{n^3}\right) \rightarrow \frac{n^3}{1}$$

$$\frac{1}{1}+\frac{8}{1}+\frac{27}{1}+\frac{64}{1}+$$

$$\frac{125}{1}+\frac{216}{1}+\frac{343}{1}+\frac{512}{1}$$

$$\frac{1}{n^{1/3}}\cdot\frac{n^3}{n^3}=\frac{n^3}{1}$$

18.

$$\begin{array}{cccc} 1 & 2 & 3 & 4 \\ 4+ & 3+ & \frac{9}{4}+ & \frac{27}{16}+\ldots \end{array}$$

$$\frac{3^{n-1}}{4^{n-2}} \quad \frac{\log n}{\log n}$$

$$\frac{3(n-1)}{4(n-2)} \quad \frac{1/n}{1/n}$$

$$\frac{3}{4}\cdot\frac{1-\frac{1}{n}}{1-\frac{2}{n}}$$

$$\frac{0}{4^{-1}}=4 \qquad \frac{3^1}{4^0}$$

Converges on 3/4

$$\frac{3}{4}\cdot\frac{1-0}{1-0}$$

24.

$$\sum_{n=1}^{\infty}\frac{3^{n+1}}{(-2)^n}\cdot\frac{\log n}{\log n} \qquad \frac{3(n+1)}{-2} \rightarrow \text{diverges}$$