Exit Slip (W 1/9)

Does $\left\{\frac{\ln n}{n^2}\right\}$ converge?

$\lim_{n\to\infty} \frac{\ln n}{n^2} = \frac{\ln\infty}{\infty^2} = \frac{\infty}{\infty}$ ← you need to show this!!

L'HR

$\lim_{n\to\infty} \frac{\frac{1}{n}}{2n} = \frac{\frac{1}{\infty}}{2\infty} = \frac{1}{2\infty^2} = \frac{1}{\infty} = 0$

Thus, the sequence converges to 0.

Exit Slip Th 1/10

a.) $2, \underline{3}, \underline{4}, \underline{5}, \underline{6}, \ldots$ (+1, +1, +1, +1)

$\underline{4 \quad 9 \quad 16 \quad 25}$

all squares!

b.) $\underbrace{1}_{\text{just '1'}}, \underbrace{\frac{1}{2}, \frac{1}{6}, \frac{1}{24}, \frac{1}{120}, \ldots}_{\text{list of factorials}}$

$a_n = \dfrac{n+1}{n^2}$ Box the n-th term!

$a_n = \dfrac{1}{n!}$

$\lim_{n\to\infty} \dfrac{n+1}{n^2} = \dfrac{\infty}{\infty}$

$\lim_{n\to\infty} \dfrac{1}{n!} = \dfrac{1}{\infty!} = 0$

$\lim_{n\to\infty} \dfrac{1}{2n} = \dfrac{1}{2\infty} = \dfrac{1}{\infty} = 0$

a_n converges to 0.

This sequence converges to 0

Exit Slip M 1/14/19

The sum of the infinite geometric series

$$\frac{3}{2} + \frac{9}{16} + \frac{27}{128} + \frac{81}{1{,}024} + \dots \text{ is}$$

(×3, ×3, ×3; ×8, ×8, ×8)

$$r = \frac{3}{8} < 1$$

$$a_1 = \frac{3}{2}$$

"sum" $$S = \frac{\frac{3}{2}}{1 - \frac{3}{8}} = \frac{\frac{3}{2}}{\frac{5}{8}} = \frac{3}{2} \cdot \frac{8}{5} = \frac{24}{10} = 2.4$$

(C.)