

$f(x) = \frac{9}{(x) \ln x}$ is continuous and positive on $[2, \infty)$, and also decreasing

since $f'(x) = -9 \frac{1 + \ln x}{(x)^2 (\ln x)^2} < 0$ for $x > 2$, so we can use the Integral Test.

$$\begin{aligned} \int_2^\infty \frac{9}{(x) \ln x} dx &= 9 \lim_{t \rightarrow \infty} [\ln(\ln x)]_2^t \\ &= 9 \lim_{t \rightarrow \infty} [\ln(\ln t) - \ln(\ln 2)] = \infty \end{aligned}$$

so the series $\sum_{n=2}^{\infty} \frac{9}{(n) \ln n}$ diverges.