

Name: _____

(20 points total)

1. (20 points) Determine whether each of the following series converges or diverges. If a series converges, find its sum if possible. State all convergence tests used.

(a)
$$\sum_{n=3}^{\infty} \frac{1}{n \ln n}$$

(b)
$$\sum_{n=1}^{\infty} \frac{n}{3n+1}$$

(c)
$$\sum_{n=2}^{\infty} 5(-1)^n (3/2)^{-2n}$$

$$(d) \sum_{n=3}^{\infty} \frac{5}{n\sqrt[3]{n}}$$

$$(e) \sum_{n=1}^{\infty} \left(\frac{3}{\sqrt{n}} - \frac{3}{\sqrt{n+1}} \right)$$