

Name:

Section: 5 6 9 10

Determine if the following series converge or diverge. You may use techniques of geometric series, telescoping series, p -series, divergence test, integral test, comparison test, limit comparison test, alternating series test, absolute convergence test. Show your work and clearly indicate which test you are using.

1.
$$\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt{n} + 1}.$$

2.
$$\sum_{n=1}^{\infty} \frac{1}{3^n + n}.$$

3.
$$\sum_{n=2}^{\infty} (-1)^n \frac{n}{n-1}.$$

$$4. \sum_{n=2}^{\infty} \frac{\sin(n) + 2 \cos(n)}{n^2 + \ln(n)}$$

$$5. \sum_{n=2}^{\infty} \frac{1}{\sqrt{n} - 1}$$

$$6. \sum_{n=1}^{\infty} \frac{2n - 1}{n^3 - 9}$$