

Worksheet 11.4

Full Name: _____ Score: _____

1. Use **The Comparison Test** to determine if each of the following series is convergent or divergent.

(a)
$$\sum_{n=1}^{\infty} \frac{1}{n^2 + 2n + 3}$$

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

(c)
$$\sum_{n=1}^{\infty} \frac{2^n}{3^n + 1}$$

(d)
$$\sum_{n=1}^{\infty} \frac{5^n}{4^n - 3}$$

(e)
$$\sum_{n=1}^{\infty} \frac{\sin^2 n}{n^{\frac{5}{2}}}$$

2. Use **The Limit Comparison Test** to determine if each of the following series is convergent or divergent.

$$(a) \sum_{n=1}^{\infty} \frac{1}{2n+3}$$

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

$$(c) \sum_{n=1}^{\infty} \frac{\sqrt{n}}{2n-1}$$

$$(d) \sum_{n=1}^{\infty} \frac{2n^4 + 3n^2 - 2n + 4}{-5n^6 + n^4 - 2n^3 + n - 15}$$

$$(e) \sum_{n=1}^{\infty} \frac{5n^2 + 2n^3 + 3n - 2}{-n + n^5 + 25}$$

$$(f) \sum_{n=1}^{\infty} \frac{2n^{\frac{3}{2}} + 3n + 5}{-5n^2 + n + 3}$$

$$(g) \sum_{n=1}^{\infty} \frac{3^n - 1}{4^n - 1}$$

$$(h) \sum_{n=1}^{\infty} \frac{5n^2 + 3^n + 7}{2n^4 + 2^n - 1}$$

$$(i) \sum_{n=1}^{\infty} \frac{2n^2 + 5}{\sqrt{9n^6 + n^2 + 8}}$$