

**Section 10.4: Comparison Tests - Worksheet**

Determine if the series below converge or diverge. Make sure to clearly label and justify the use of any convergence test used. **Note:** some of these problems require convergence tests from previous sections.

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

4. 
$$\sum_{n=3}^{\infty} \frac{\ln(n)^2}{\sqrt{n}}$$

7. 
$$\sum_{n=0}^{\infty} \left( \frac{n}{n+3} \right)^n$$

2. 
$$\sum_{n=1}^{\infty} \frac{3^n}{n5^n}$$

5. 
$$\sum_{n=2}^{\infty} \frac{1}{\sqrt{n} \ln(n)^2}$$

8. 
$$\sum_{n=1}^{\infty} \frac{7 - 3 \cos(n^2)}{n^5 + 3}$$

3. 
$$\sum_{n=0}^{\infty} \frac{2^{2n}}{3^n + 11n^2}$$

6. 
$$\sum_{n=2}^{\infty} \frac{1}{n \ln(n)^2}$$

9. 
$$\sum_{n=2}^{\infty} n \sin\left(\frac{5}{n^3}\right)$$