

WORSHEET 2
SERIES

Do these problems on separate paper. Do *not* use a graphing calculator on any of these problems.

Determine whether or not the series converge using the appropriate convergence test (there may be more than one applicable test.) State the test used. If possible, give the sum of the series.

1. $\sum_{n=0}^{\infty} \left(\frac{2}{7}\right)^n$

7. $2 + \frac{1}{2} + \frac{1}{8} + \frac{1}{32} + \dots$

2. $\sum_{n=1}^{\infty} \frac{4}{n^3}$

8. $\sum_{n=1}^{\infty} \frac{5n^2 - 6n + 3}{n^3 - 7n + 8}$

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

9. $\sum_{n=1}^{\infty} \frac{\cos n\pi}{\sqrt{n}}$

4. $\sum_{n=1}^{\infty} \frac{1}{\sqrt[3]{n^5 + 5}}$

10. $\sum_{n=1}^{\infty} \frac{3^n + 4}{2^n}$

5. $\sum_{n=1}^{\infty} \frac{n^n}{n!}$

11. $\sum_{n=1}^{\infty} \frac{8n^3 - 6n^5}{12n^4 + 9n^5}$

6. $\frac{1}{5} + \frac{1}{6} + \frac{1}{7} + \frac{1}{8} + \frac{1}{9} + \dots$

12. $\sum_{n=1}^{\infty} \sqrt{\frac{3n+1}{n^5+2}}$

13. Determine if the series $\sum_{n=1}^{\infty} \frac{(-1)^n}{\sqrt[5]{3n+4}}$ converges absolutely, converges conditionally, or diverges.