

## 9.2 Series and Convergence

Name:

Date: July 21, 2015

**P 8.** Determine if the series converges or diverges.

$$\sum_{n=0}^{\infty} 4(-1.05)^n$$

**P 10.** Determine if the series converges or diverges.

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

**P 12.** Determine if the series converges or diverges.

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

**P 14.** Determine if the series converges or diverges.

$$\sum_{n=1}^{\infty} \frac{n!}{2^n}$$

**P 15.** Determine if the series converges or diverges.

$$\sum_{n=0}^{\infty} \left(\frac{5}{6}\right)^n$$

**P 18.** Determine if the series converges or diverges.

$$\sum_{n=0}^{\infty} (-0.6)^n = 1 - 0.6 + 0.36 - 0.216 + \dots$$

**P 20.** Determine if the series converges or diverges.

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

**P 26.** Determine if the series converges or diverges. If it converges, find its sum.

$$\sum_{n=0}^{\infty} \left(-\frac{1}{5}\right)^n$$

**P 28.** Determine if the series converges or diverges. If it converges, find its sum.

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

**P 40.** Write the repeating decimal as a geometric series, and write its sum as a ratio of two integers.

$$0.2\overline{15}$$

**P 42.** Determine if the series converges or diverges. If it converges, find its sum.

$$\sum_{n=0}^{\infty} \frac{3^n}{1000}$$

**P 44.** Determine if the series converges or diverges. If it converges, find its sum.

$$\sum_{n=1}^{\infty} \frac{4n + 1}{3n - 1}$$

**P 46.** Determine if the series converges or diverges. If it converges, find its sum.

$$\sum_{n=1}^{\infty} \left( \frac{1}{n+1} - \frac{1}{n+2} \right)$$

**P 48.** Determine if the series converges or diverges. If it converges, find its sum.

$$\sum_{n=0}^{\infty} \frac{3}{5^n}$$

**P 50.** Determine if the series converges or diverges. If it converges, find its sum.

$$\sum_{n=1}^{\infty} \ln \frac{1}{n}$$

**P 53.** Determine if the series converges or diverges. If it converges, find its sum.

$$\sum_{n=1}^{\infty} \arctan n$$

**P 64.** Find all  $x$  values for which the series converges.

$$\sum_{n=0}^{\infty} 5 \left( \frac{x-2}{3} \right)^n$$