

Determine the convergence or divergence of the series. Indicate the test used.

1) 
$$\sum_{k=1}^{\infty} \frac{4k}{k^2 + 1}$$

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

3) 
$$\sum_{n=1}^{\infty} n! e^{-4n}$$

4) 
$$\sum_{k=1}^{\infty} \frac{11}{\sqrt{k}}$$

5) 
$$\sum_{n=1}^{\infty} \frac{2^n}{n!}$$

6) 
$$\sum_{n=1}^{\infty} \frac{n^2}{10n^3 + 100}$$

7) 
$$\sum_{n=1}^{\infty} (-1)^{n-1} \frac{9}{5^n}$$

8) 
$$\sum_{n=1}^{\infty} \frac{\ln n}{n}$$

9) 
$$\sum_{n=1}^{\infty} \frac{5^{n+1}}{4^{n-1}}$$

10) 
$$\sum_{n=0}^{\infty} \frac{n^3 + 2}{9^n}$$

## Answer Key

Testname: WORKSHEET 10.2 TESTS FOR CONVERGENCE

- 1) Diverges; Integral test
- 2) Diverge; Divergence test
- 3) Diverges' Ratio Test
- 4) Diverges; p-series
- 5) Converges; Ratio Test
- 6) Diverge; Integral Test
- 7) Converges; Geometric
- 8) Diverge; Integral Test
- 9) Diverges; Geometric
- 10) Converges; Ratio