HW 3, MA 1023
Due 2/7

In exercise 1-4, determine the convergence or divergence of the series. If the series is convergent, find the sum value.

1.

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

2. -

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

3.

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

4.

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

In exercise 5-6, determine the convergence or divergence of the series. **Specify the test you use in determining the convergence or divergence of the series.**

5.

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

6.

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

In exercise 7-8, use ratio test to determine the convergence or divergence of the series.

7.

$$\sum_{n=1}^{\infty} \frac{2^{n+1}}{n3^{n-1}}$$

8.

$$\sum_{n=1}^{\infty} \frac{n^2}{(-4)^n}$$