

Homework 7

1. Determine whether the given series converges or diverges. If you use a convergence test, make sure to specify it in your solution.

(a)

$$\sum \frac{\sin(2n)}{2^n}$$

(b)

$$\sum \frac{3 + \cos n}{n^2}$$

(c)

$$\sum \sin \frac{n\pi}{4}$$

(d)

$$\sum \frac{n}{2^n}$$

Hint: use Comparison test with $b_n = \frac{1}{(\sqrt{2})^n}$

(e)

$$\sum \frac{(-1)^n}{n^2 - n}$$

Hint: use Comparison test with $b_n = \frac{2}{n^2}$

2. Do Problems 1 through 8 on page 167 of the textbook (Section 13.5).