f. prove that the series diverges.

**Divergence Test**

If

If

, find

When listing the first 5 terms, we get { 1, -1, 1, -1, 1 } which shows that when n is odd, the term is 1 and when n is even, the term is -1. Therefore, is 1 and -1. Since, is not 0, then it diverges.