

DO NOT WRITE ON THIS SHEET! WORK WITH YOUR GROUP AND TRY TO HELP EACH OTHER TODAY!

Objective 5: You should be able to use the p-Series Test to determine if a series converges or diverges.

A series CONVERGES if $p > 1$

A series DIVERGES if $0 < p < 1$

A series DIVERGES if $p = 1$ (the Harmonic Series)

- Solve problems A - F in your packet under p-Series.
- Be careful – D, E, and F are not p-Series! Think about another test you know that you can use. (Note: There are 2 tests you could use on D and 2 tests you could use on E)
- Check your answers on Weebly → My BC Notes → Packet KEY

SUMMARY:

- To find whether a SEQUENCE converges or diverges, evaluate $\lim_{n \rightarrow \infty} a_n$. If this gives you a finite value, the SEQUENCE converges to that value. If this gives you +/- infinity, the SEQUENCE diverges.
- To find whether a SERIES converges or diverges, use one of the tests you have learned:
 - Geometric (has to be in the form $\sum_{n=1}^{\infty} a(r)^{n-1}$ or $\sum_{n=0}^{\infty} a(r)^n$)
 - Telescopic (look for partial fractions)
 - nth Term Test (only tests for divergence!)
 - Integral Test
 - p-Series Test
- To find the value to which a series converges, use the following (you can only do this for geometric or telescopic):
 - For a geometric series, use $S = \frac{a}{1-r}$, where a is the first term
 - For a telescopic series, write the series with partial fractions. Then substitute values for n until you see terms collapse. Sum the terms that are left to get your value.

Quiz Objectives for Tuesday:

- Be able to tell if a SEQUENCE converges or diverges. If it converges, find the value to which it converges. (Be careful – don't confuse your rule for sequences with your series tests. Go back and review 9.1)
- Given a SERIES,
 - tell if it converges or diverges
 - tell which test you are using
 - if it converges and it's possible to find the value to which it converges, find it (you can only do this with geometric or telescopic)

When finished, please come up to get your Unit 1 test back. You may start working on corrections. You need to file your test in your test folder and put it in the crates on the front table by the end of the period (1st period = blue, 2nd period = green).