Series — Mixed

Name: _____ Date: _____

Does each series converge or diverge? Choose a test for each.

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

   $\sum |a_n| = \sum \frac{1}{n^2\sqrt{n}}$: $p = \frac{5}{2} > 1$, converges

   The series converges absolutely

2. $\sum_{n=1}^{\infty} \frac{1}{n^2\sqrt{n}}$

3. $\sum_{n=1}^{\infty} -3\left(\frac{3}{2}\right)^{n-1}$

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

Series · Mixed — Answer key

1. $\infty\sum n = 1(-1)^{n+1}\frac{1}{n^2\sqrt{n}}$ → converges absolutely

2. $\infty\sum n = 1\frac{1}{n^2\sqrt{n}}$ → converges

3. $\infty\sum n = 1-3(\frac{3}{2})^{n-1}$ → diverges

4. $\infty\sum n = 1\frac{1}{(n+2)(n+3)}$ → converges, $S = \frac{1}{3}$