

## §11.6 Absolute Convergence and the Ratio and Root Tests

## In-class Activity 11.6



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## Activity 1:

Is  $\sum_{n=1}^{\infty} \frac{(-1)^n}{2n^2 + 1}$  absolutely or conditionally convergent?

## Activity 2:

Is  $\sum_{n=1}^{\infty} \frac{\sin(n)}{n^4}$  convergent or divergent?

### Activity 3:

Test the series for absolute convergence:

(a)  $\sum_{n=1}^{\infty} \frac{2^n}{n!}$

(b)  $\sum_{n=1}^{\infty} \frac{n^5}{5^n}$

### Activity 4:

(a) Use the Ratio Test to test the series for absolute convergence:  $\sum_{n=1}^{\infty} \frac{n^n}{n!}$

(b) Then use the Test for Divergence.

### Activity 5:

Test the series for absolute convergence:

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

(b)  $\sum_{n=1}^{\infty} (-1)^{n-1} \frac{n^n}{8^{2+3n}}$

### Activity 6:

Test the series for absolute convergence:  $\sum_{n=1}^{\infty} \left( \frac{\ln(n)}{n} \right)^n$