Do the following series converge absolutely, converge conditionally, or diverge?
If the series converges, find a value of n so that S_n approximates the value of the series accurate within 0.001.

1. $\displaystyle\sum_{k=2}^{\infty} \frac{(-1)^k}{k \ln(k)}$

2. $\displaystyle\sum_{k=1}^{\infty} \frac{2^k}{k \, 5^k}$

3. $\displaystyle\sum_{m=13}^{\infty} \sin(3m)$

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

5. $\displaystyle\sum_{n=3}^{\infty} \frac{1}{n^2 - 1}$