Problems. January 15.

1. Use the integral test to determine whether the series is convergent or divergent
$$\sum_{n=1}^{\infty} \frac{e^{-n} \sin e^{-n}}{\cos e^{-n}}.$$

2. Use the integral test to determine whether the series is convergent or divergent
$$\sum_{n=3}^{\infty} \frac{1}{n \cdot \ln n \cdot \ln(\ln n)}.$$

3. Test the series for convergence or divergence
$$\sum_{n=1}^{\infty} \frac{\arctan n}{n^2 + \sqrt{n}}.$$

4. Test the series for convergence or divergence
$$\sum_{n=1}^{\infty} \frac{4 + \cos n}{2n - 1}.$$