

## Worksheet 09

MATH 16B GSI:TAO SU TU 11/07/2017

1. Determine the sum of the infinite series  $\sum_{k=0}^{\infty} \frac{3^{k+1}}{5^k}$

2. Use the integral test to determine whether the infinite series is convergent or divergent (assuming you can apply the integral test).

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

(b)  $\sum_{k=2}^{\infty} \frac{1}{k(\ln k)^2}$

3. Use the comparison test to determine whether the infinite series is convergent or divergent.

(a)  $\sum_{k=1}^{\infty} \frac{1}{k3^k}$

(b)  $\sum_{k=1}^{\infty} \frac{1}{5^k} \cos^2\left(\frac{k\pi}{4}\right)$

(c)  $\sum_{k=0}^{\infty} \frac{1}{(3/4)^k + (5/4)^k}$