1. For each series:

- (i) Find the limit of $\{a_k\}$, the sequence of terms of the series
- (ii) Show that the series converges
- (iii) Find the limit of $\{S_n\}$, the sequence of partials sums of the series

(a)
$$\sum_{k=0}^{\infty} 7e^{-k}$$
 (b) $\sum_{k=13}^{\infty} \left(-\frac{3}{7}\right)^{k}$

2. Do the following series converge or diverge?

(a)
$$\sum_{k=1}^{\infty} \frac{1}{3^k + 2}$$

(b)
$$\sum_{k=2}^{\infty} \frac{1}{k^2}$$
 Hint: Draw a picture comparing with $\int_1^{\infty} \frac{1}{x^2} dx$.

Hint: Draw a picture comparing with
$$\int_1^\infty \frac{1}{x} dx$$
.

イロト イヨト イヨト イヨト

T. Ratliff (Wheaton College)

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

Math 104 Calculus II

■ ▶ ◀ ■ ▶ ■ つへへ March 26, 2009 1 / 1