

For  $x \geq 1$ ,  $7 \frac{2 + e^{-x}}{x} > \frac{14}{x}$  [since  $e^{-x} > 0$ ]  $> \frac{1}{x}$ .  $\int_1^{\infty} \frac{1}{x} dx$  is divergent by † with  $p = 1 \leq 1$ , so  $\int_1^{\infty} 7 \frac{2 + e^{-x}}{x} dx$  is divergent by the Comparison Theorem.

†

$\int_1^{\infty} \frac{1}{x^p} dx$  is convergent if  $p > 1$  and divergent if  $p \leq 1$ .