HOJA 7

1) The sequence $\{x_n\}_{n=1}^{\infty}$ of positive real numbers decreases and satisfies $\sum_{n=1}^{\infty} x_n = \infty$. Prove that

$$\sum_{n=1}^{\infty} x_n \exp(-\frac{x_n}{x_{n+1}}) = \infty.$$

2) Find all integer solutions of the equation

$$x^4 + y^4 = 3x^3y.$$