3) $$X_n = \frac{1}{n+1} + \frac{1}{n+2} + \cdots + \frac{1}{n+n}$$

$$X_n = \sum_{K=1}^{n} \frac{1}{n+K} = \frac{1}{n} \sum_{K=1}^{n} \frac{1}{1+\frac{K}{n}}$$

Consideremos $f: [0,1] \longrightarrow \mathbb{R}$

$$f(x) = \frac{1}{1+x} \quad \forall x \in [0,1]$$

~~Por la regla de Barrow~~

Como f es continua, entonces es integrable, y por la regla de Barrow

$$\int_0^1 f(x)dx = \int_0^1 \frac{1}{1+x}dx = Ln|1+x|\Big|_0^1 = Ln(2) - Ln(1) = Ln(2)$$

Por último, se tiene:

$$\int_0^1 f(x)dx = \int_0^1 \frac{1}{1+x}dx = \lim_{n\to\infty} \frac{1}{n} \sum_{K=1}^{n} f\left(\frac{K}{n}\right) = \lim_{n\to\infty} \frac{1}{n} \sum_{K=1}^{n} \frac{1}{1+\frac{K}{n}} =$$

$$= \lim_{n\to\infty} X_n = \boxed{Ln(2)}$$