

$$P_1 = 0 \quad t_1 = 500 \quad \Rightarrow \quad P(0) = 500$$

$$P_2 = 10 \quad t_2 = 600 \quad \Rightarrow \quad P(10) = 600$$

$$P(t) = Ce^{kt}$$

$$P(0) = Ce^{k(0)}$$

$$500 = Ce^0$$

$$500 = C(1)$$

$$C = 500$$

$$P(t) = 500e^{kt}$$

$$P(10) = 500e^{k(10)}$$

$$600 = 500e^{10k}$$

$$\frac{600}{500} = e^{10k}$$

$$1.2 = e^{10k}$$

$$\ln(1.2) = \ln e^{10k}$$

$$0.1823215 = 10k$$

$$k = \frac{0.1823215}{10}$$

$$k = 0.0182321$$

$$P(t) = 500e^{0.0182321t}$$

▼Obteniendo la población para un tiempo de 11 años.

$$P = ? \quad t = 11$$

$$P(t) = 500e^{0.0182321t}$$

$$P(11) = 500 \cdot e^{0.0182321(11)}$$

$$P(11) = 500 \cdot e^{0.2005531}$$

$$P(11) = 500(1.2220785)$$

$$P(11) = 611.0392514$$

▼Obteniendo el tiempo para una población de 660.

$$P = 660 \quad t = ?$$

$$P(t) = 500e^{0.0182321t}$$

$$660 = 500 \cdot e^{0.0182321t}$$

$$\frac{660}{500} = e^{0.0182321t}$$

$$1.32 = e^{0.0182321t}$$

$$\ln(1.32) = \ln(e^{0.0182321t})$$

$$0.2776317 = 0.0182321t$$

$$t = \frac{0.2776317}{0.0182321}$$

$$t = 15.2276334$$