

87. (a) Using $n_0 = 1500$ and $n(5) = 3200$ in the formula $n(t) = n_0 e^{rt}$, we have
- $$3200 = n(5) = 1500 e^{5r} \quad \Leftrightarrow \quad e^{5r} = \frac{32}{15} \quad \Leftrightarrow \quad 5r = \ln\left(\frac{32}{15}\right) \quad \Leftrightarrow \quad r = \frac{1}{5} \ln\left(\frac{32}{15}\right) \approx 0.1515.$$
- Thus $n(t) = 1500 \cdot e^{0.1515t}$.
- (b) We have $t = 1999 - 1988 = 11$ so $n(11) = 1500e^{0.1515 \cdot 11} \approx 7940$. Thus in 1999 the bird population should be about 7940 birds.