The table gives the midyear population of Norway, in thousands, from 1960 to 2010.[1]

Year	Population	Year	Population
1960	3581	1990	4242
1965	3723	1995	4359
1970	3877	2000	4492
1975	4007	2005	4625
1980	4086	2010	4891
1985	4152		

Use a calculator to fit both an exponential function and a logistic function to these data. Graph the data points and both functions, and comment on the accuracy of the models. [Hint: Subtract 3500 *from each of the population figures. Then after obtaining a model from your calculator, add 3500 to get your final model. It might be helpful to choose* $t = 0$ *to correspond to* 1960*.]*

Entering the data into our TI-83 using $t = 0$ to correspond to 1960 and choosing `ExpReg`, we get

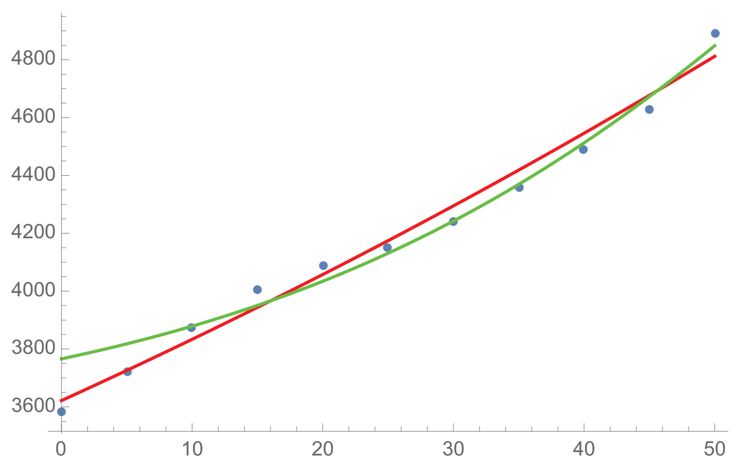
$$P_E(t) = 3624.81\,(1.0056)^t$$

The calculator handled the data without any adjustment.

Choosing `Logistic`, we got a domain error. So we followed the hint and subtracted 3500 from each population value. We then get

$$P_L(t) = \frac{4816.82}{1 + 17.11\mathrm{e}^{-0.0379t}} + 3500$$

In the plot, the exponential regression is in red, and the logistic regression is in green. It is difficult to visually determine which is a better fit. The exponential function is close to all the points, whereas the logistic function misses the points by quite a bit at first, but is very close after $t = 25$.



[1]Stewart, *Calculus, Early Transcendentals*, p. 619, #16.