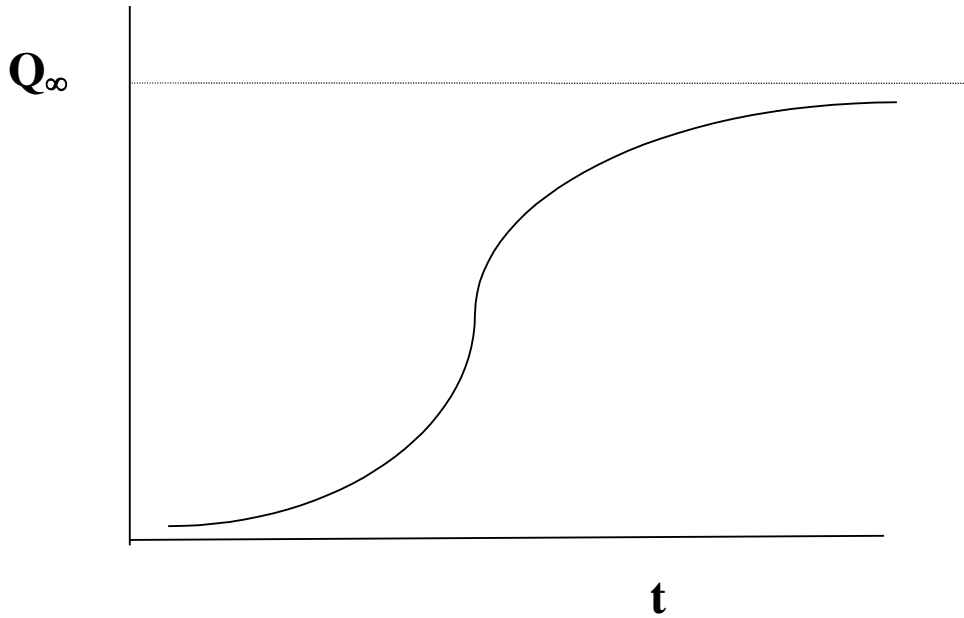


**31. Incorrect The answer is false not true.** Hubbert modeled cumulative production as a logistic function over time:

$$Q_t = \frac{Q_\infty}{[1 + \alpha e^{-\beta(t-t_0)}]}$$

$Q_\infty$  is estimated total reserves,  $\alpha$  and  $\beta$  are parameters that are estimated statistically from historical data, and  $t_0$  is the beginning time period. Such a curve for cumulative production ( $Q_t$ ) has the shape shown below.



Cumulative production asymptotically approaches total reserves over time. Production will have the familiar bell shaped curve.