

For  $\frac{dP}{dt} = kP(M-P)$

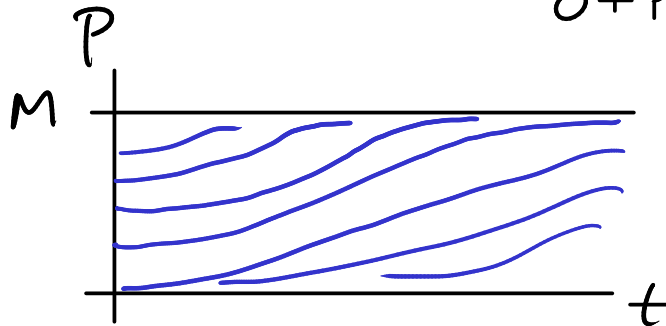
$P = \frac{MP_0}{(M-P_0)e^{-kMt} + P_0}$  is the general solution.

Solution curves:

Two cases: if  $0 < P_0 < M$  then  $M - P_0 > 0$  so  $(M - P_0)e^{-kMt}$  is decreasing

and  $P$  is increasing.

$t \rightarrow +\infty \quad P \rightarrow \frac{MP_0}{0 + P_0} = M$



If  $P_0 > M$  then  $M - P_0 < 0$  and  $(M - P_0)$  is increasing so  $P$  is decreasing.

