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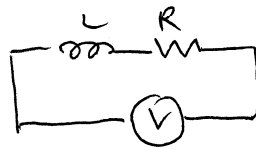## Examples of systems modeled by 1st-order ODEs (Ch3)

Examples:

Example 1: Series circuit

LR-series circuit

Given $V=12$, $R=10\,\Omega$, $L=\frac{1}{2}H$, $i(0)=0$

Example 2: Population dynamics

growth of population:

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But, due to limited resources, at some point, the growth rate will decrease.

For simplicity, let's assume growth rate

Remarks:
① DE with a form of   is called
   Such DE is commonly shown in a system with

② Features of the