$$\frac{dy}{dt} = -y + 5, \;\; y(0) = a$$

$$\frac{dy}{dt} = -y + 5 \Rightarrow \frac{dy}{dt} = -(y-5) \Rightarrow \frac{dy}{y-5} = -dt;$$

$$\int \frac{dy}{y-5} = -\int dt;$$

$$\ln|y-5| = -t + C,$$

where C=const.

So $\ln|y-5| = -t + C \Rightarrow y - 5 = e^{C-t} \Rightarrow y = 5 + e^{C-t}$.

As $y(0) = a$ *then* $a = 5 + e^{C-0} \Rightarrow C = \ln|a-5|$.

Therefore

$$y = 5 + e^{\ln|a-5|-t} = 5 + \frac{a-5}{e^t}$$

Answer: $y = 5 + \frac{a-5}{e^t}$