

This is a test Lorem Ipsum text.

$$\begin{aligned}\frac{dy}{dx} &= \frac{1}{10}[\sin(x) - xy] \\ \frac{dy}{dx} + \left(\frac{1}{10}x\right)y &= \frac{1}{10}\sin(x)\end{aligned}$$

Let I.F. be $e^{\int \frac{1}{10}x \, dx} = e^{0.05x^2}$:

$$\begin{aligned}e^{0.05x^2}y &= \int \frac{1}{10}e^{0.05x^2}\sin(x) \, dx \\ \left[e^{0.05x^2}y\right]_0^h &= \int_0^h \frac{1}{10}e^{0.05x^2}\sin(x) \, dx \\ e^{0.05h^2}y(h) - e^0y(0) &= \int_0^h \frac{1}{10}e^{0.05x^2}\sin(x) \, dx\end{aligned}$$

Since $y(0) = 0$,

$$e^{0.05h^2}y(h) = \int_0^h \frac{1}{10}e^{0.05x^2}\sin(x) \, dx.$$