**LINEAR FIRST-ORDER EQUATIONS- examples solved in class**

**1.** $y' = 2y + e^{-t}$
**2.** $y' = -2y + 3 + \sin t$
**3.** $y' = (-2 + \sin t)y$
**4.** $y' = (-2 + \sin t)y + e^{2t} \sin t$
**5.** $y' = (1 - 2t)y + te^t$
**6.** $y' = (\sin t)y + \sin t$
**7.** $ty' + y = t^3$
**8.** $(1 + t^2)y' + 4ty = t, \quad y(1) = 1/4$
**9.** $(\sin t)y' + (\cos t)y = t \sin t, \quad y(\pi/2) = 2$
**10.** $y' + p(t)y = t, \quad y(0) = 1$; $p(t) = 1$ if $t < 2$, $p(t) = 3$ if $t > 2$ (continuous solution).