國立中山大學 97 學年度第 2 學期資訊工程學系資工數學

Quiz #1
2009/03/04

1. Solve the ODE by integration：

   (A).　$y' = -\sin \pi x$　(15%)

   (B).　$y' = x e^{x^2/2}$　(15%)

2. Verify that y is a solution of ODE. Determine from y the particular solution satisfying the given initial condition.

   (A).　$y' = 1 + 4y^2$,　$y = \dfrac{1}{2}\tan(2x + c)$,　$y(0) = 0$　(20%)

(B). $y'+2xy=0$，$y=ce^{-x^2}$，$y(1)=1/e$　(20%)

3. (Airplane takeoff) If an airplane has a run of 3km, starts with a speed 6 m/sec, moves with constant acceleration, and makes the run in 1 min, with what speed does it take off? (30%)