

MATH2214 - Extra Assignment For Quiz No1- Fall 03- Konaté

Notice: Show your work. A right answer with a bad reasoning will be considered as wrong. Class abstracts are allowed. No calculator allowed.

A• Say if function $y_i(t)$ $i = 1, 2, 3, 4, 5$ is a solutions of the differential equation:

$$\begin{cases} \frac{dy}{dt} + \sqrt{1-y^2} = 0 \\ y(0) = 1 \end{cases} \quad \text{(25 points)}$$

$$y_1(t) = 1; \quad y_2(t) = 2; \quad y_3(t) = \cos(t);$$

$$y_4(t) = \sin(t); \quad y_5(t) = \cos(t) + \sin(t).$$

B• Solve the differential equation:

$$\text{B.1•} \quad \begin{cases} \frac{dy}{dt} = t\sqrt{t^2+9} \\ y(-4) = 0 \end{cases} \quad \text{(25 points)}$$

$$\text{B.2•} \quad \begin{cases} \frac{dy}{dt} = -\frac{y^2}{t^2} \\ y(1) = 1 \end{cases} \quad \text{(25 points)}$$

$$\text{B.3•} \quad \begin{cases} \frac{dy}{dt} = y^2 \\ y(0) = 1 \end{cases} \quad \text{(25 points)}$$
