

$$y' = \frac{3}{\sqrt{1-9x^2}}, \quad y(0) = 4$$

Integrate, let  $3x = u$ , then  $3dx = du$

$$\begin{aligned} y &= \int \frac{3}{\sqrt{1-9x^2}} dx = \int \frac{1}{\sqrt{1-u^2}} du = \arcsin u + C \\ &= \arcsin(3x) + C \end{aligned}$$

Apply initial condition:

$$\begin{aligned} y(0) &= \arcsin(0) + C = 4 \\ C &= 4 \end{aligned}$$

So,

$$y = \arcsin(3x) + 4$$