

$$y' = 5 \cos(5x), \quad y(0) = 2$$

Integrate:

$$y = \int 5 \cos(5x) dx = \sin(5x) + C$$

Apply initial value,

$$y(0) = \sin(0) + C = 2$$

$$C = 2$$

so, $y = \sin(5x) + 2$