

$$7. \quad y = e^{3x-1} \quad \begin{matrix} x & y \\ (0, & \frac{1}{e}) \end{matrix}$$

FIND EQUATION OF TANGENT  
LINE AT A POINT

① FIND DERIVATIVE

$$y' = e^{3x-1} \cdot \frac{d}{dx}(3x-1)$$

$$y' = 3e^{3x-1}$$

② CHANGE  $y'$  TO  $m$  AND  
PLUG IN  $x$  PART OF  
POINT

$$m = 3e^{3(0)-1}$$

$$m = 3e^{-1}$$

$$m = \frac{3}{e}$$

$$m = \frac{3}{e}$$

③ INTO  $y = mx + b$ , PLUG IN GIVEN  
POINT FOR  $x, y$  AND  $m$  FROM  
STEP ② AND SOLVE FOR  $b$

$$y = mx + b$$

$$\frac{1}{e} = \frac{3}{e}(0) + b$$

$$\frac{1}{e} = b$$

④ WRITE ANSWER

$$y = mx + b$$

$$y = \frac{3}{e}x + \frac{1}{e}$$