

**3.1** Найдем производную:

$$(\ln 3x)' = \frac{1}{3x} (3x)' = \frac{1}{3x} \cdot 3 = \frac{3}{3x} = \frac{1}{x}$$

$$\begin{aligned} (\ln 3x)' &= (\ln 3 + \ln x)' = \\ &= (\ln 3)' + (\ln x)' = 0 + \frac{1}{x} = \frac{1}{x} \end{aligned}$$

Ответ:

$$\boxed{(\ln 3x)' = \frac{1}{x}}$$

**3.2** Найдем производную:

$$(\ln x^3)' = \frac{1}{x^3} (x^3)' = \frac{1}{x^3} \cdot 3x^2 = \frac{3}{x}$$

$$\begin{aligned} (\ln x^3)' &= (3 \ln x)' = \\ &= 3 (\ln x)' = 3 \cdot \frac{1}{x} = \frac{3}{x} \end{aligned}$$

Ответ:

$$\boxed{\ln x^3 = \frac{3}{x}}$$