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Example 3

Write an equation of the line that passes through $(-4, 3)$ and is perpendicular to the line whose equation is $y = -4x - 1$.

Recall slope of a line \perp to the line of the equation $y = -4x - 1$ is the opposite reciprocal of $-\frac{4}{1}$. The slope is $-\frac{1}{-4} = \frac{1}{4}$

$$y = mx + b$$

$$3 = \frac{1}{4} \cdot -4 + b$$

$$3 = -1 + b$$

$$\begin{array}{r} +1 \quad +1 \\ \hline 4 = b \end{array}$$

Final Ans:

$$y = mx + b$$

$$y = \frac{1}{4}x + 4$$