

This book has permission to use the "N&K method of COLORS".

9) Question: The equation below represents a line on the xy coordinate plane.

In the equation below, "m" is the slope of the line and "b" is the intercept of the line on the y-axis.

$$y = mx + b$$

Which of the following is the correct representation of "x"?

- A) $\frac{y-b}{m}$
- B) $\frac{y-m}{b}$
- C) $\frac{b-y}{m}$
- D) $\frac{m-b}{y}$

For speed, while solving something similar, only THINK the words in blue; WRITE only the words in other COLORS.

Given: 1) The equation of a line on the xy-coordinate plane. $y = mx + b$

Solve: Which of the following is the correct representation of "x"?

Road Map of Solution:

First Step: Start with the original equation.

Second Step: Rewrite the above equation, such that we have only "x" on one side of the equation.

First Step: Start with the original equation in which only "y" is on one side of the equation.

$$y = mx + b$$

$$y = mx + b$$

$$[y] - b = [mx + b] - b$$

$$y - b = mx + \cancel{b} - \cancel{b}$$

$$y - b = mx$$

$$[y - b] \times \left(\frac{1}{m}\right) = [mx] \times \left(\frac{1}{m}\right)$$

$$[y - b] \times \left(\frac{1}{m}\right) = [\cancel{m}x] \times \left(\frac{1}{\cancel{m}}\right)$$

$$\frac{[y - b] \times (1)}{m} = 1x \times (1)$$

$$\frac{[y - b]}{m} = x$$

$\frac{y-b}{m} = x \dots\dots\dots$ Answer(A)
