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

9) *Question:* *Solve the equations below to find the value of* (x, y)

$$5x + 10y = 25$$
$$2y - 6x = 40$$

A) $(-1,5)$
B) $(-5,5)$
C) $(-5,4)$
D) $(-5,3)$

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

Solution:

Given	$5x + 10y$	$=$	25	*equation # 1*
	$2y - 6x$	$=$	40	*equation # 2*

Road Map of Solution:
First, *Subtract eq # 2 from 1.*
Second, *Solve and find the value of "x".*
Third, *Substitute the value of "x" in eq # 1 and find the value of "y".*

Before we can subtract eq 2 from 1, we have to modify it.
We will multiply both sides of eq # 2 with 5. On doing so, we will get.

$\{2y - 6x\} \times (5)$	$=$	$\{40\} \times (5)$	*equation # 2b*
$\{10y - 30x\}$	$=$	$\{200\}$	
$10y - 30x$	$=$	200	*equation#2b*

Therefore, to subtract eq 2c from 1, we will write eq#1 followed by eq#2b.
To subtract, we will also multiply both sides of eq#2b with -1.

$5x + 10y$	$=$	25	*equation # 1*
$\{10y - 30x\} \times (-1)$	$=$	$\{200\} \times (-1)$	*equation # 2b times (-1)*
$\{-10y + 30x\}$	$=$	$\{-200\}$	
$-10y + 30x$	$=$	-200	*equation # 2c*

From eq#1 & eq#2c, we get,

$5x + \cancel{10y}$	$=$	25	*equation # 1*
$\cancel{-10y} + 30x$	$=$	-200	*equation # 2c*
$35x$	$=$	-175	*equation # 3*

Dividing both sides of the equation # 3, with 35, we get,

x	$=$	-5	*equation # 3b*

Substituting this value of "x" in equation # 1, we get

$5x + 10y$	$=$	25	*equation # 1*
$5(-5) + 10y$	$=$	25	
$-25 + 10y$	$=$	25	

Adding 25 to both sides of the equation # 3, with 35, we get, needsWork

$\{-25 + 10y\} + 25$	$=$	$\{25\} + 25$	
$-25 + 10y + 25$	$=$	$25 + 25$	
$\cancel{-25} + 10y + \cancel{25}$	$=$	50	
$10y$	$=$	50	
y	$=$	5	

Answer: $(x, y) = (-5, 5)$