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

18) Question: The following two inequalities are lines in the xy coordinate system.

$5y - p < -2x$

$5y - q > 2x$

(0, 0.2) satisfies both inequalities above.

Which of the following choices is always true?

A) $1 < p$
B) $1 < q$
C) $5 < p$
D) $5 < q$

nc

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

Given: 1) Two inequalities.

$5y - p < -2x$

$5y - q > 2x$

2) The coordinate point (0, 0.2) satisfies both inequalities above.

Solve: Which of the above choices is always true?

Road Map of Solution:
First Step: Substitute (0, 0.2) in the two inequalities
- to find the value of p.
- to find the value of q.
Second Step: Compare the values of p & q with the choices.

First Step: Substitute (0, 0.2) in the two inequalities.

$5y - p < -2x$ ..... #1
$5(0.2) - p < -2(0)$
$1 - p < 0$
$+p \{ 1 - p \} < \{ 0 \} +p$
$+p \quad 1 - p < 0 \quad +p$
$1 < 0 \quad +p$

$1 < p$ ..... #1b

$5y - q > 2x$ ..... #2
$5(0.2) - q > 2(0)$
$1 - q > 0$
$+q \{ 1 - q \} > \{ 0 \} +q$
$+q \quad 1 - q > 0 \quad +q$
$1 > 0 \quad +q$

$1 > q$ ..... #2b

Based on #1b above, $1 < p$, choice (A) $1 < p$ is always true.
Based on #2b above, $1 > q$, choice (B) $1 < q$ is never true.
Based on #1b above, $1 < p$, choice (C) $5 < p$ is NOT always true.
p is always > 1
p may sometimes be > 5,
p may sometimes be < 5,
Based on #2b above, $1 > q$ choice (D) $5 < q$ is never true.
Based on the reasoning above, Answer (A)