

EXAMPLE 4

Objective function
 $K = 5x + y$

Constraints:

$$\begin{cases} 2x + y \leq 3 \\ -3x + y \leq 3 \\ y \geq -3 \text{ horizontal} \end{cases}$$

$$\begin{aligned} &\rightarrow 2x + y \leq 3 \\ &\quad -2x \quad \quad -2x \\ &\quad \quad y \leq 3 - 2x \\ &\quad \quad m = -\frac{2}{1} \quad b = 3 \end{aligned}$$

$$\begin{aligned} &\rightarrow -3x + y \leq 3 \\ &\quad +3x \quad \quad +3x \\ &\quad \quad y \leq 3 + 3x \\ &\quad \quad m = \frac{3}{1} \quad b = 3 \end{aligned}$$

$$K = 5x + y$$

! (0, 3)
 $K = 5(0) + 3$
 $= 0 + 3$
 $K = 3$

(-2, -3)
 $K = 5(-2) + -3$
 $= -10 + -3$
 $K = -13$
min

(3, -3)
 $K = 5(3) + -3$
 $= 15 + -3$
 $K = 12$
max

- A. Graph the feasible region.
- B. Find the maximum and minimum values, if they exist.

