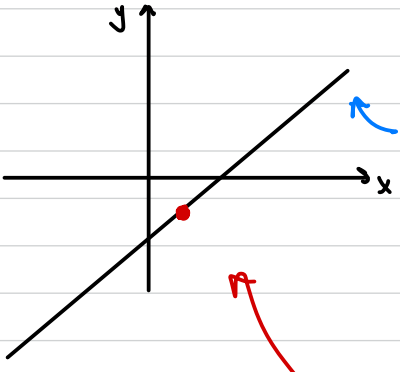
$g(x,y)$ ↓ c ↓

Ex Find points on line $2x - 3y = 6$ where

$f(x,y) = xy$ could have an absolute minimum.



constraint: $g(x,y) = c$.

$\nabla f = (y, x)$

$\nabla g = (2, -3)$

Note: line is not bounded.
EVT does not apply.

$\nabla f = \lambda \nabla g$ $\quad y = 2\lambda$, $\quad x = -3\lambda$ ①

$g(x,y) = c$ $\quad 2x - 3y = 6$ ②

① $\Rightarrow$ $\lambda = \frac{y}{2} = \frac{x}{-3}$ $\rightsquigarrow$ $-3y = 2x$ $\quad x = -\frac{3}{2}y$

Into ②: $(-3y) - 3y = 6$ $\rightsquigarrow$ $y = -1 \Rightarrow x = +\frac{3}{2}$.

($2x = -3y$)

$\hookrightarrow \left(+\frac{3}{2}, -1\right)$