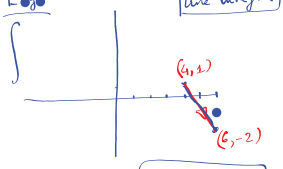
Ex

Line integral

Parameterize the line segment from $(4,1)$ to $(6,-2)$ such that when $t=0$ the line is at $(4,1)$ and when $t=1$ the line is at $(6,-2)$



$0 \le t \le 1$

$x = f(t)$
$y = g(t)$

$t=0$
$x = 2t+4$

t	x	y
0	4	1
1	6	-2

$x = mt + b$

$m = \frac{6-4}{1-0} = \frac{2}{1} = 2$

$x = 2t + b$

$t=0, x=4 \; ; \; 4 = b$

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$y = mt + b$

t	y
0	1
1	-2

$\begin{cases} x = 2t+4 \\ y = -3t+1 \end{cases}$

$0 \le t \le 1$

$m = \frac{-2-1}{1-0} = -3$

$y = -3t + b$

$1 = b$

$y = -3t + 1$

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Ex: Parameterize the line segment from $(-1,5)$ to $(2,3)$ so that the line is at $(-1,5)$ when $t=0$ and at $(2,3)$ when $t=1$.

$\begin{cases} x = ? & x = 3t - 1 \\ y = ? & y = -2t + 5 \end{cases}$

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