$$R = 3.2\ mol^{-1}\,L\,s^{-1}[A][B]$$

$$= 3.2\ mol^{-1}\,L\,s^{-1}\left(0.0025\ mol\,L^{-1}\right)\left(0.0075\ mol\,L^{-1}\right)$$

$$= 6.0 \times 10^{-5}\ mol\,L^{-1}\,s^{-1}$$

units of k:

$$mol^{1-\text{overall order}} \cdot L^{\text{overall order}-1} \cdot time^{-1}$$

$aA \longrightarrow prod(s)$

Consider zero, first, and second order

ZERO ORDER:

$aA \longrightarrow prod(s)$

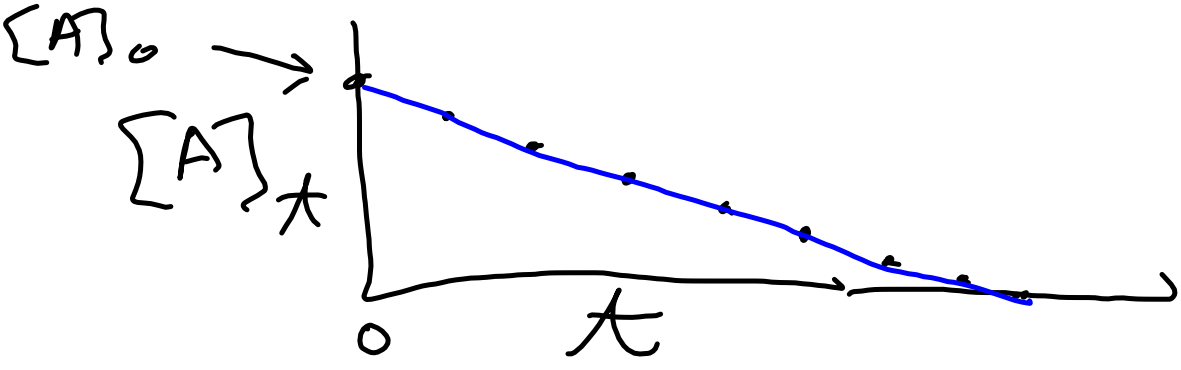
$R = k[A]^0 = k(1) = k$

$R = k$

$mol^{1-\text{overall order}} \cdot L^{\text{overall order}-1} \cdot time^{-1}$

$[A]_t = [A]_0 - kt$

$y = b + mx$



FIRST ORDER

$aA \longrightarrow product(s)$

$R = k[A]^1 = k[A]$

$\ln[A]_t = \ln[A]_0 - kt$

$y = b + mx$