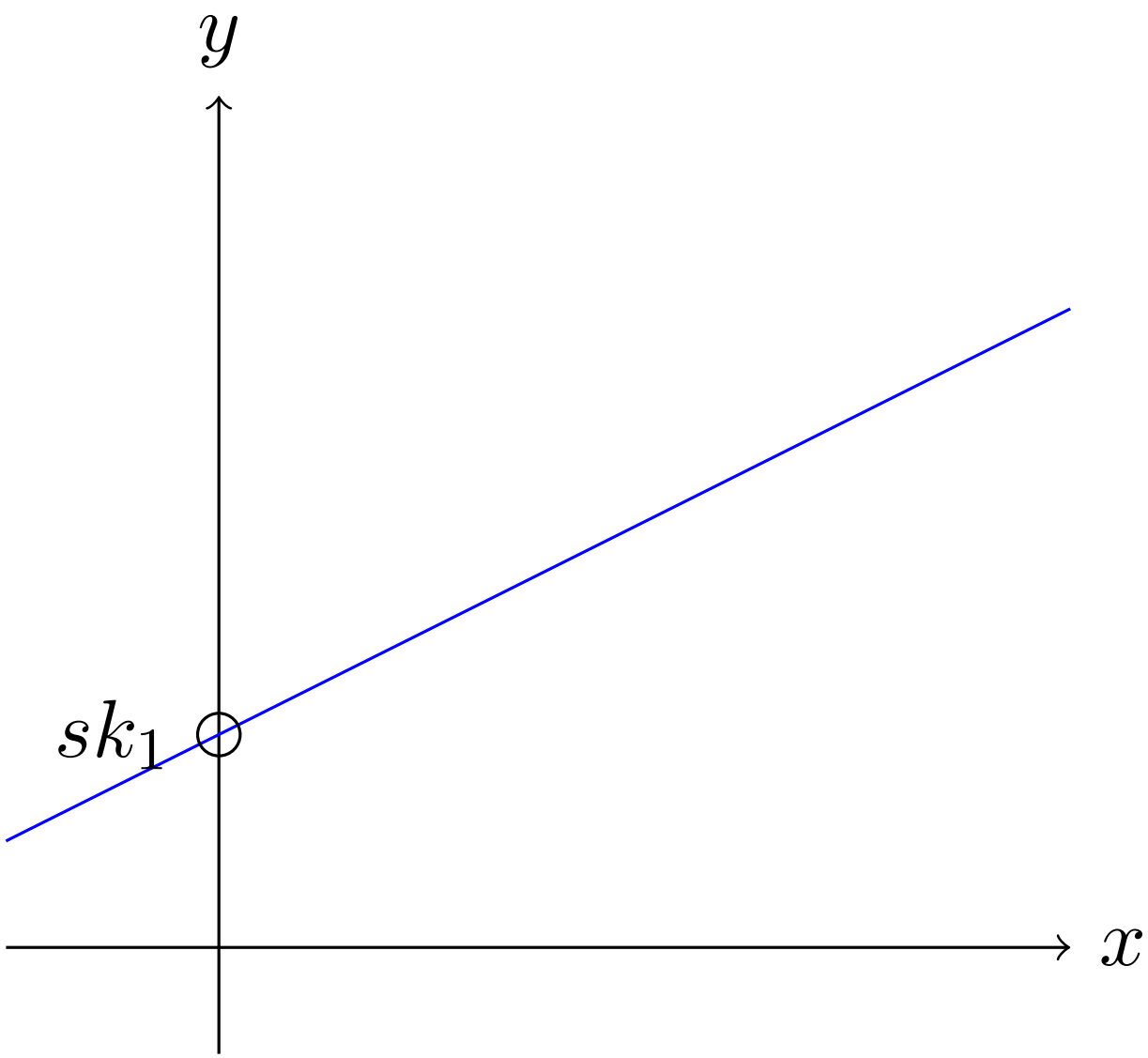
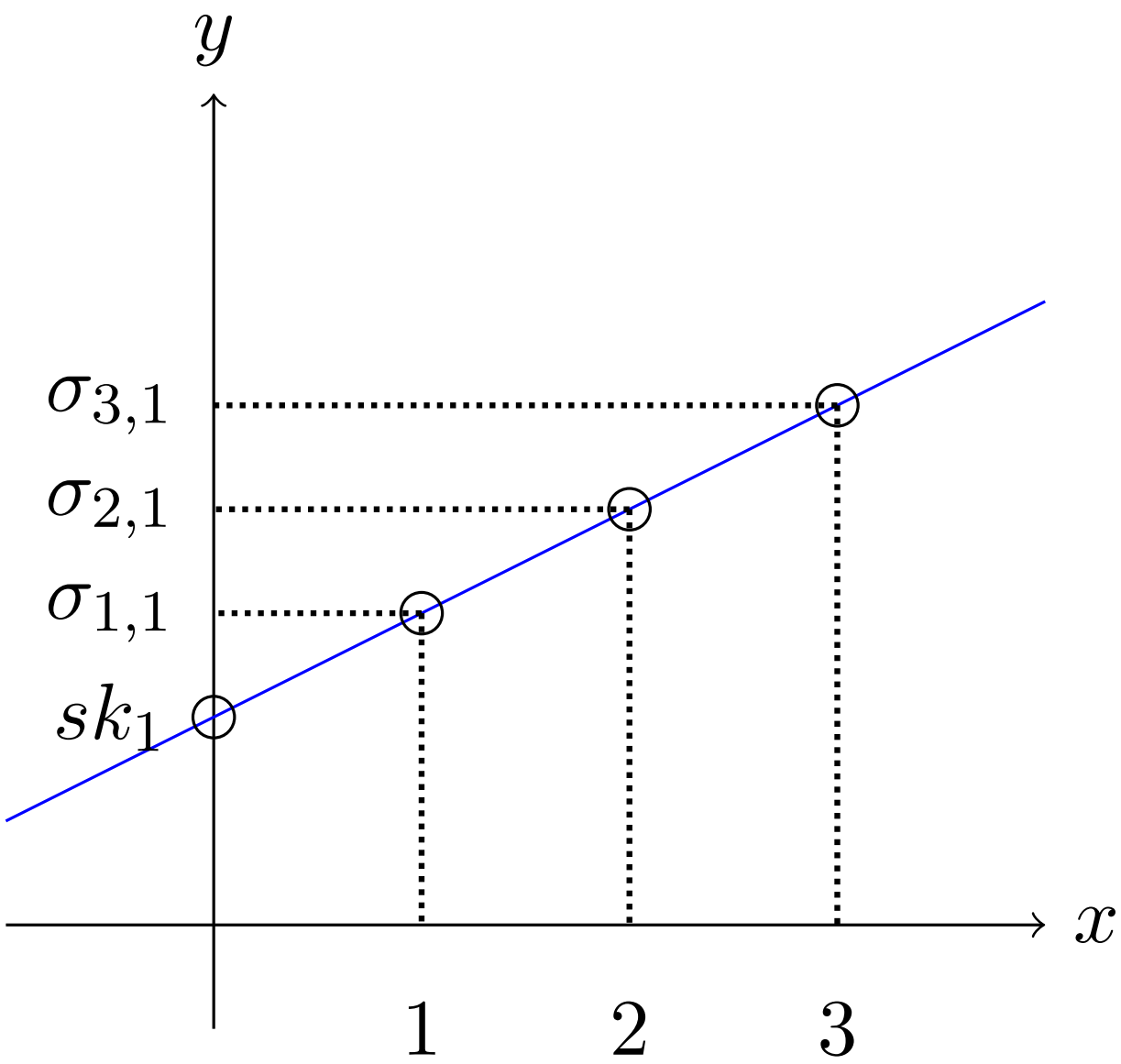
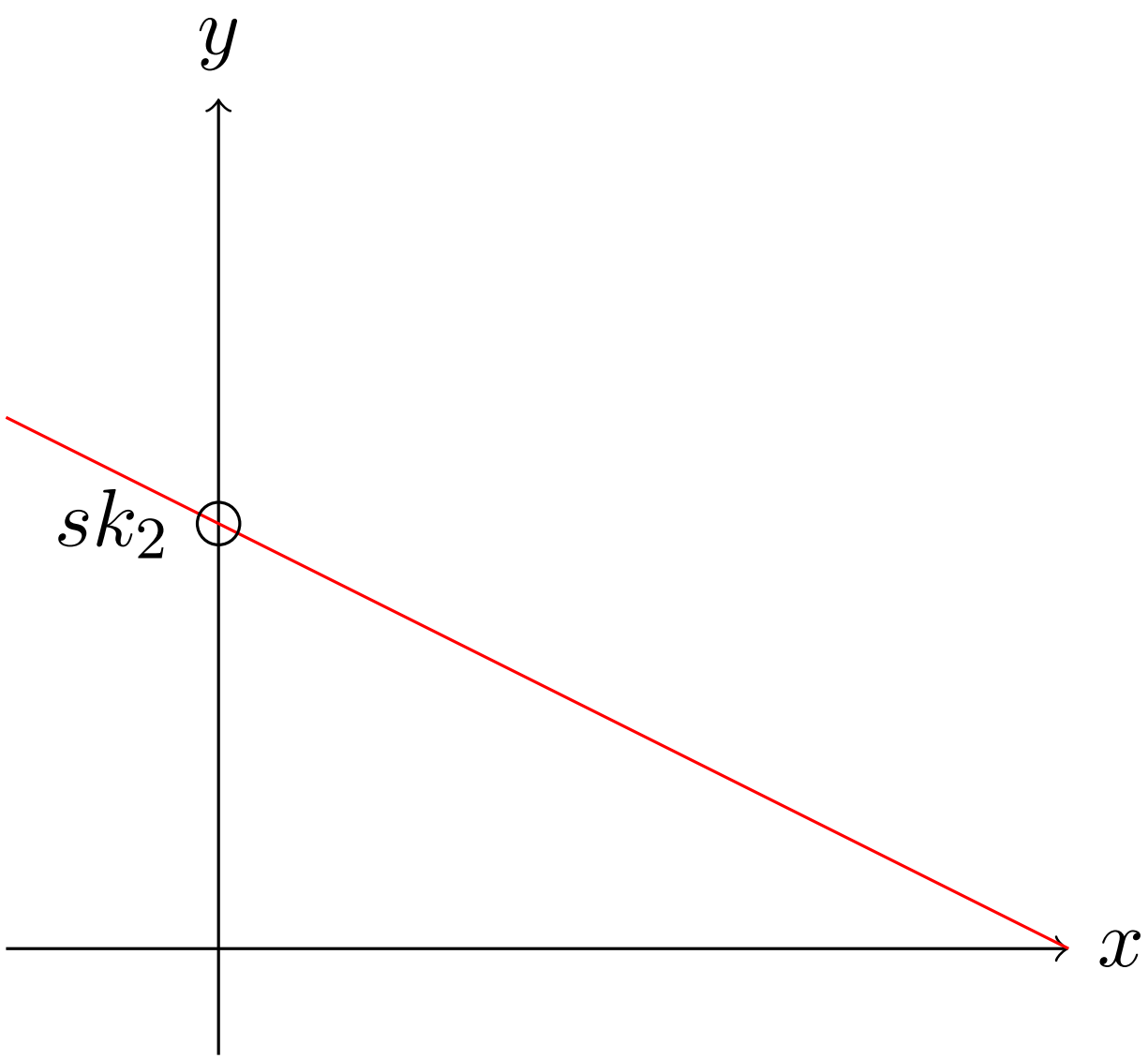
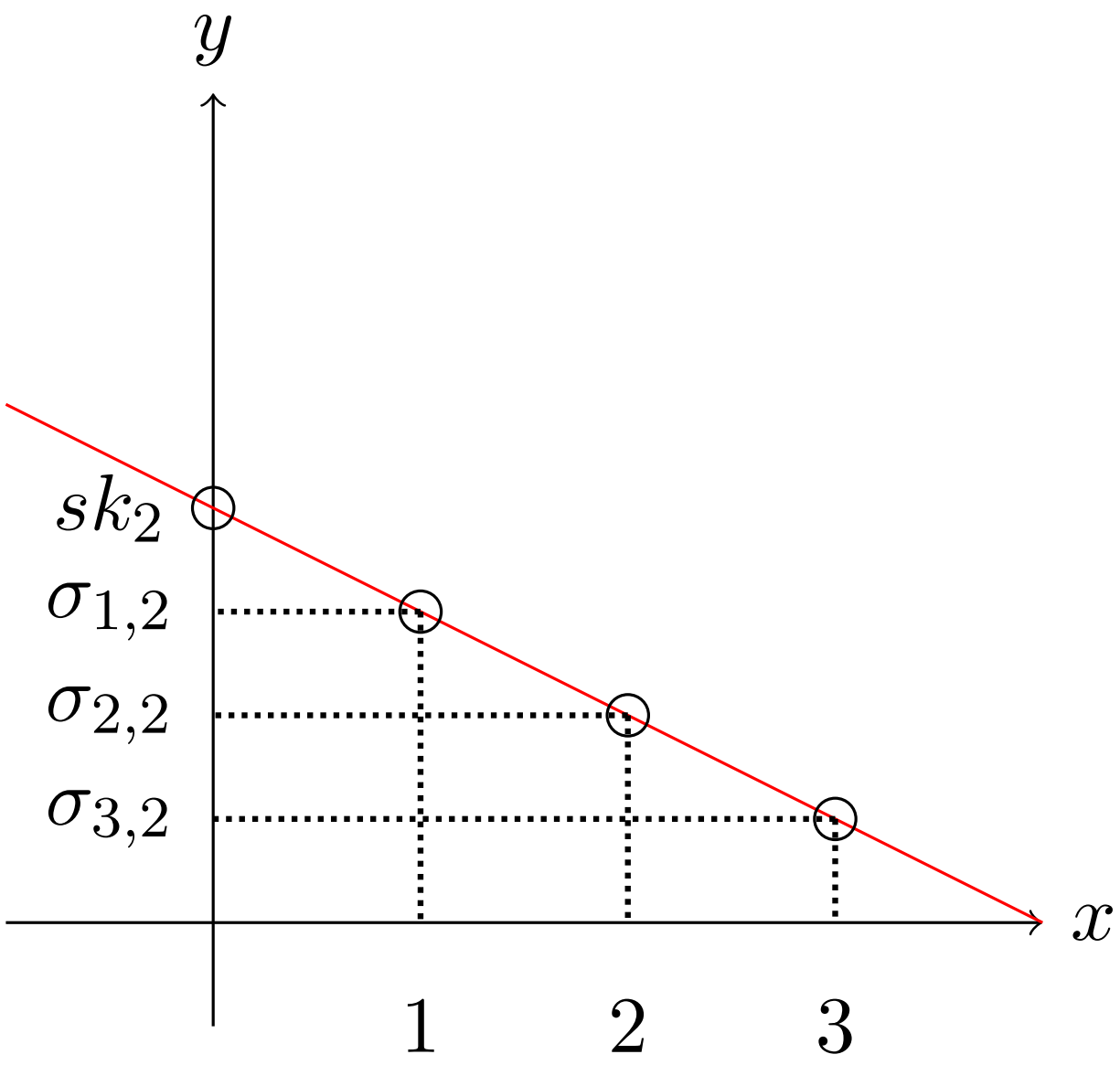
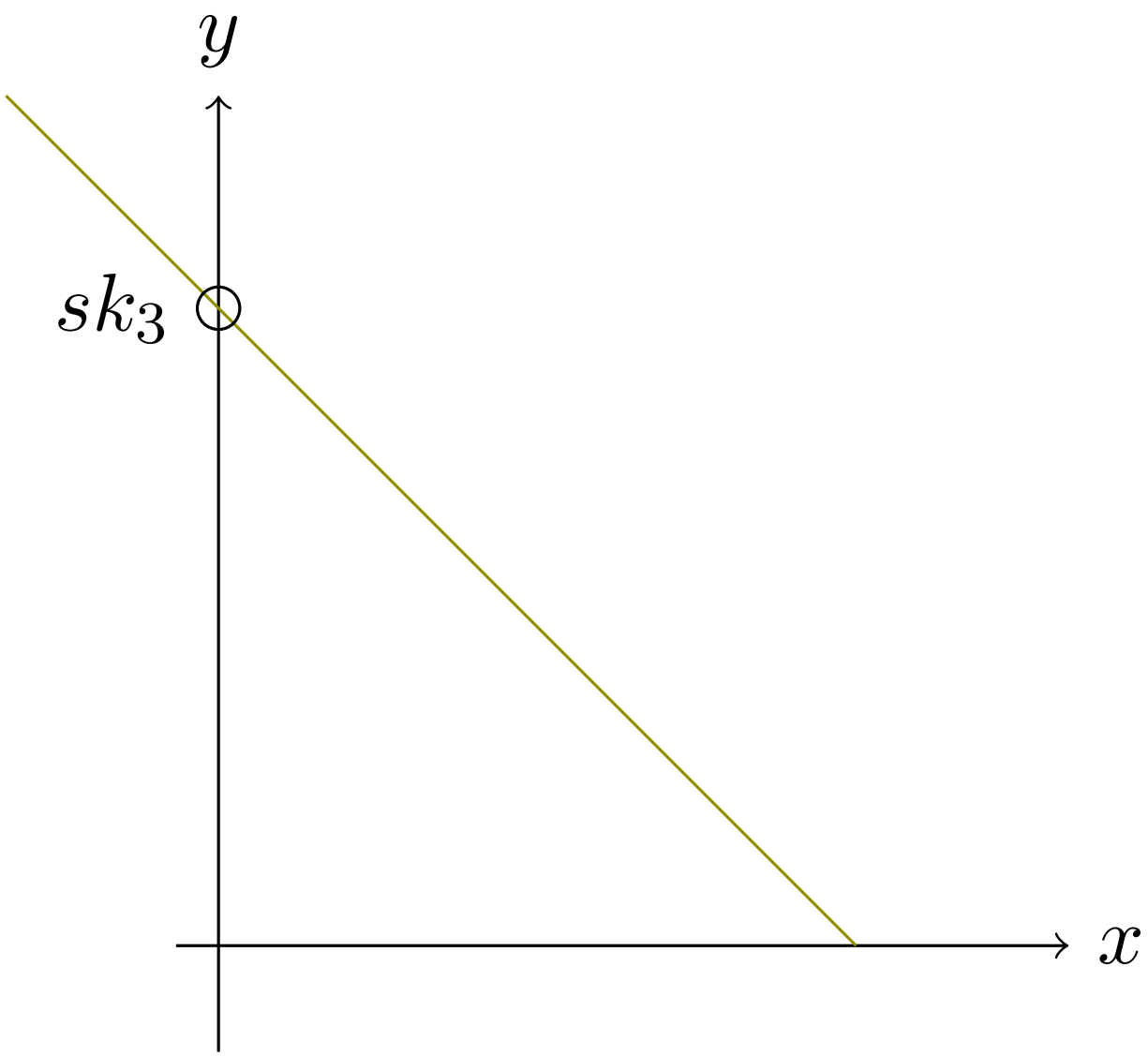
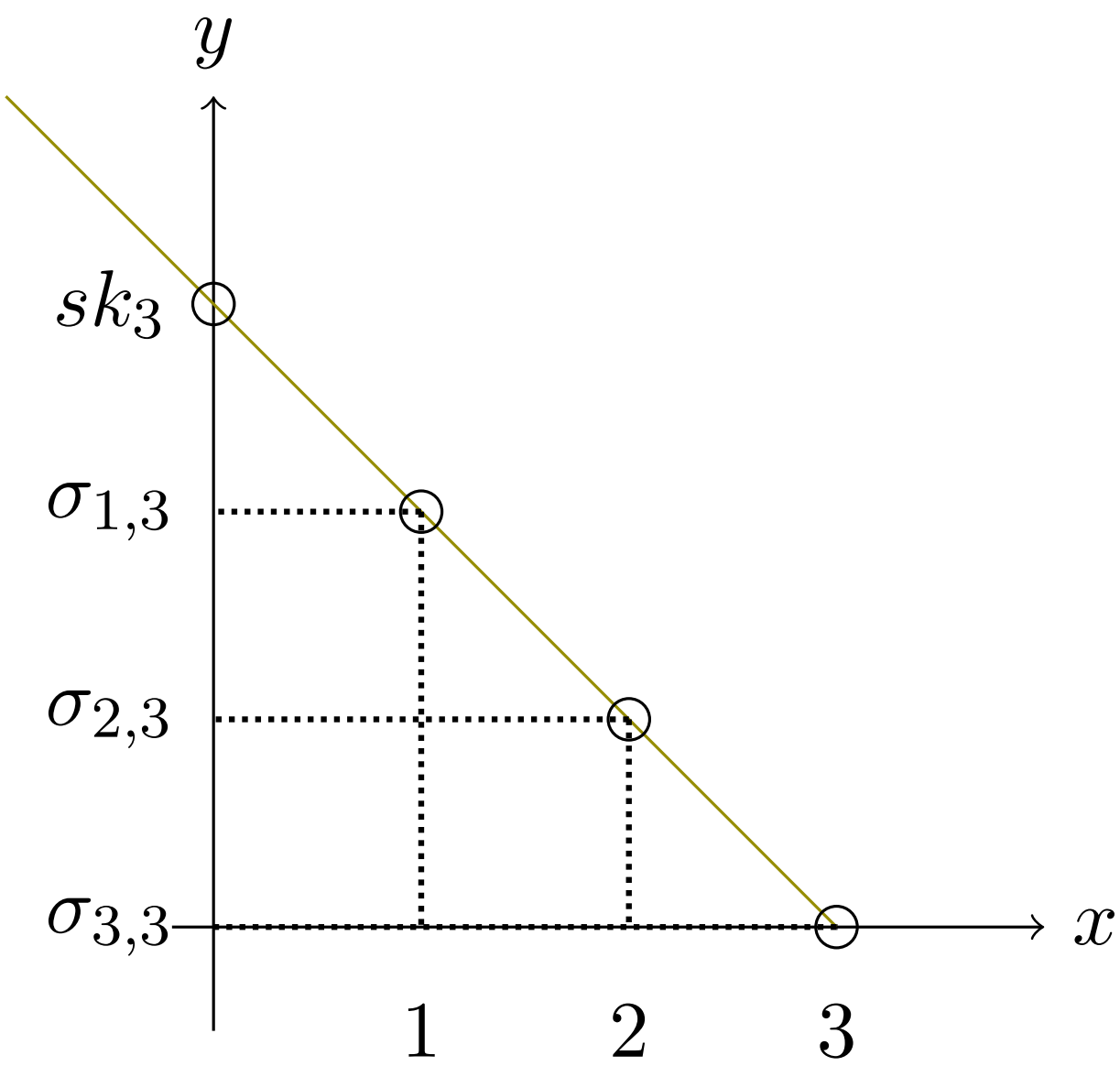

y
sk_1
x

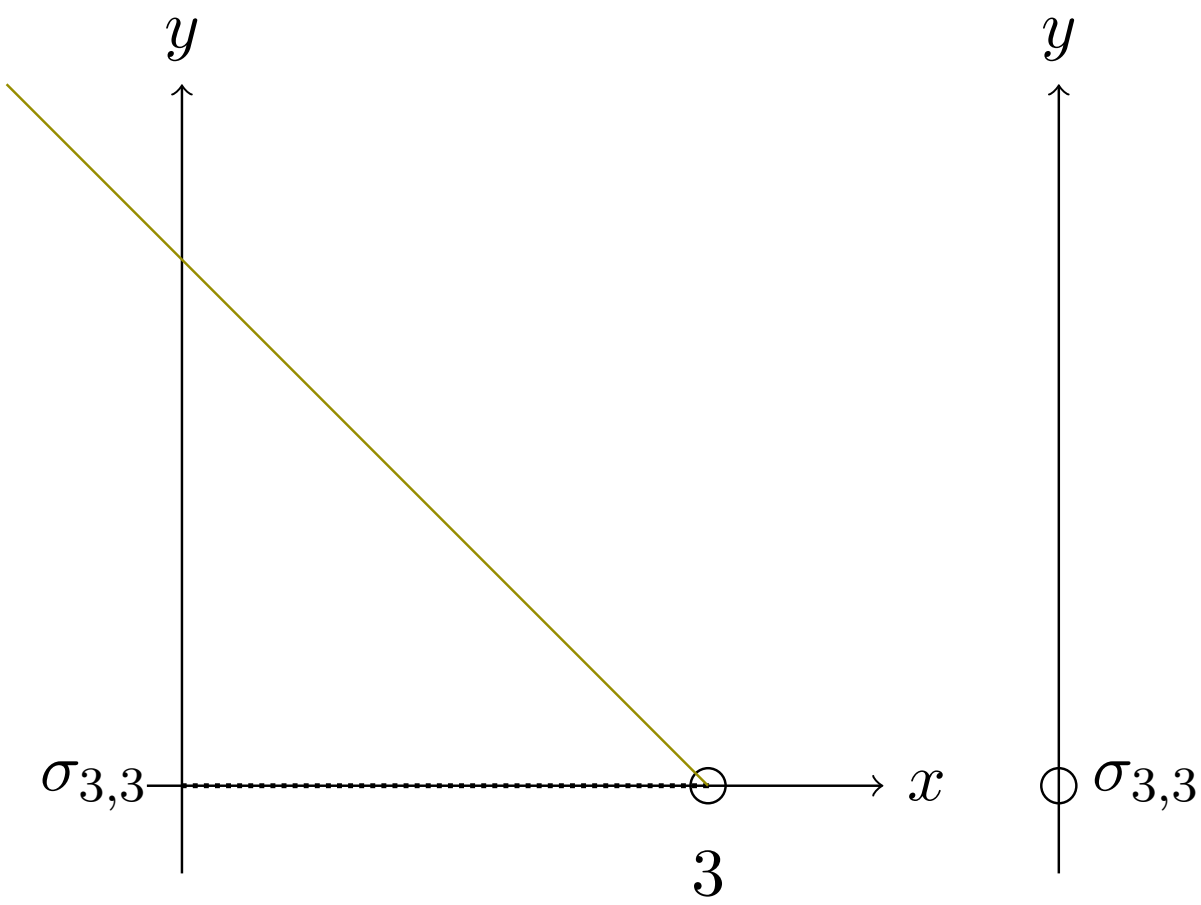

y
$\sigma_{3,1}$
$\sigma_{2,1}$
$\sigma_{1,1}$
sk_1
x
1
2
3

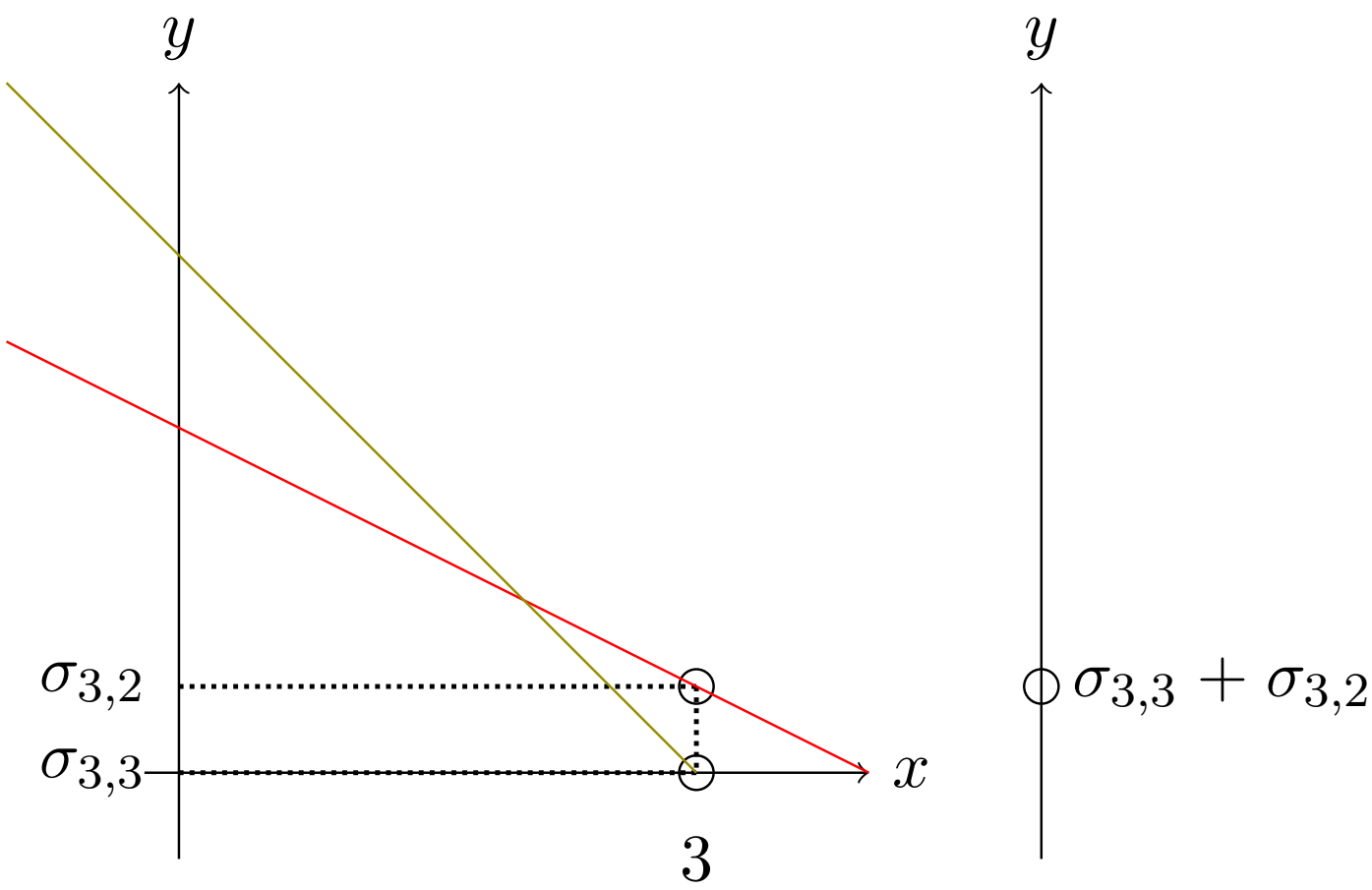

y
sk_2
x

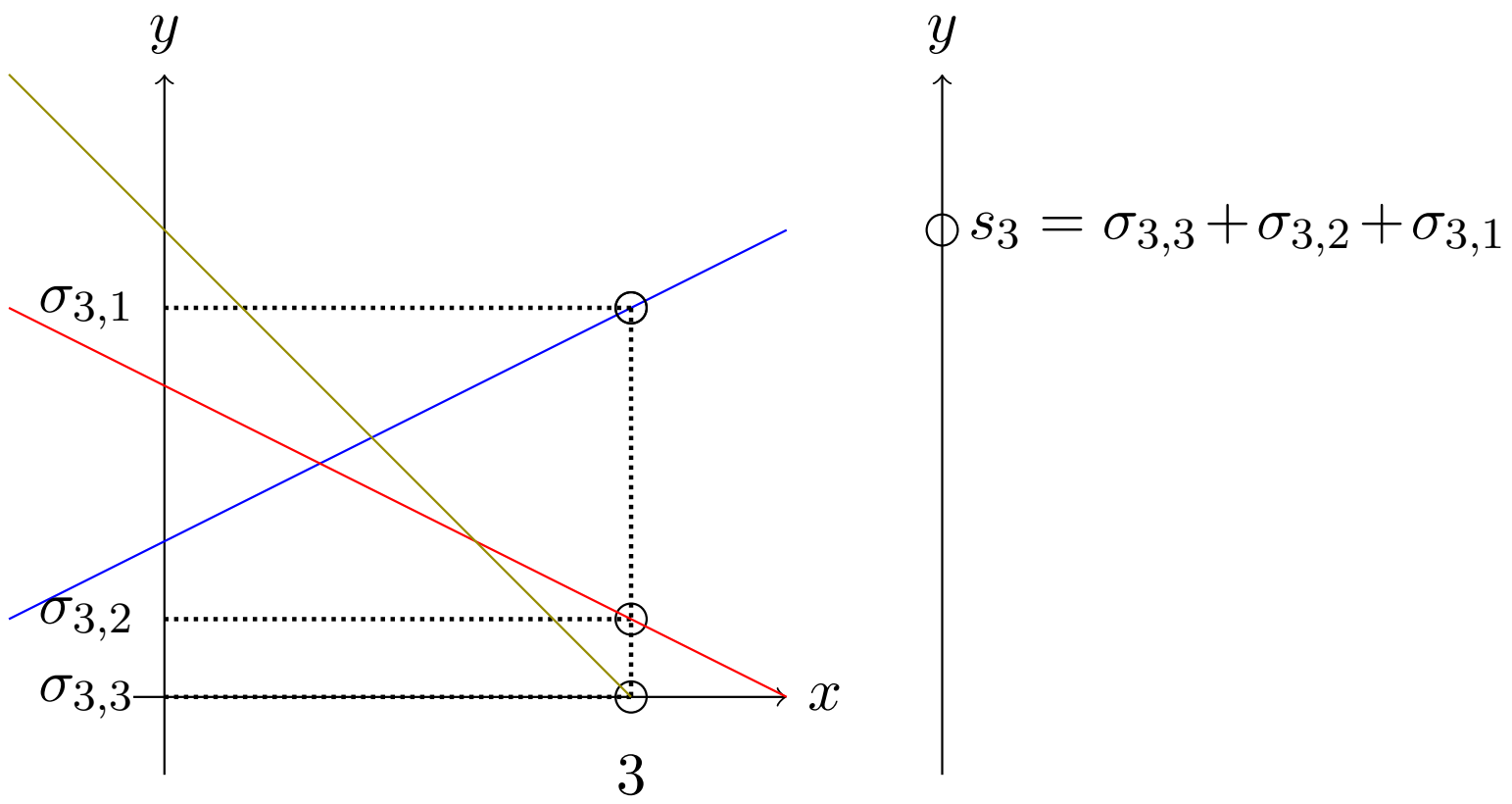

y
sk_2
$\sigma_{1,2}$
$\sigma_{2,2}$
$\sigma_{3,2}$
x
1
2
3

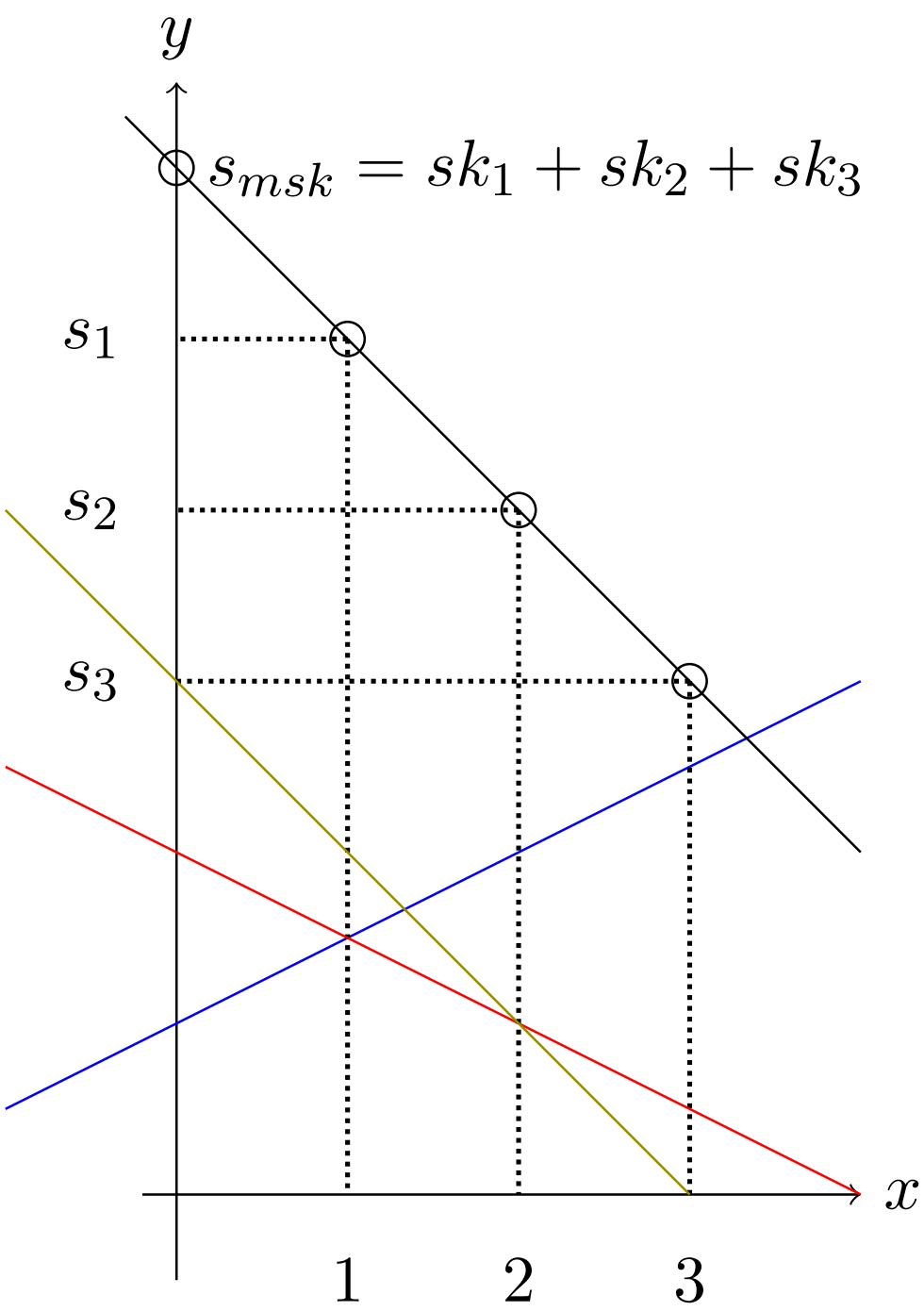

y
sk_3
x


y
sk_3
$\sigma_{1,3}$
$\sigma_{2,3}$
$\sigma_{3,3}$
x
1
2
3


y
$\sigma_{3,3}$
x
3
y
$\sigma_{3,3}$


y
$\sigma_{3,2}$
$\sigma_{3,3}$
x
3
y
$\sigma_{3,3} + \sigma_{3,2}$


y
$\sigma_{3,1}$
$\sigma_{3,2}$
$\sigma_{3,3}$
x
3
y
$s_3 = \sigma_{3,3} + \sigma_{3,2} + \sigma_{3,1}$


y
$s_{msk} = sk_1 + sk_2 + sk_3$
s_1
s_2
s_3
x
1
2
3

$$sk_{msk} = sk_1 + sk_2 + sk_3$$

$$e\left(Q_{privj,Alice}, P\right) = e\left(Q_{Alice}, P_{pubj}\right) \tag{1}$$

$$P_{pub} = \sum_{j=\{1,2\}} b_j P_{pubj} \quad \text{for} \quad b_j = \prod_{z \in \{1,2\}} \frac{z}{z-j} \tag{2}$$

$$sk_{Alice} = \sum_{j \in \{1,2\}} b_j Q_{privj,Alice} \quad \text{for} \quad b_j = \prod_{z \in \{1,2\}} \frac{z}{z-j} \tag{3}$$

$$\rho = w_i \oplus H_2\left(e\left(sk_{Alice}, U\right)\right) \tag{4}$$

$$k = v \oplus H_3\left(\rho\right) \tag{5}$$

$$r = H_3\left(\rho \parallel k\right) \tag{6}$$

$$s_2 = \sigma_{2,3} + \sigma_{2,2} + \sigma_{2,1} \tag{7}$$

$$s_1 = \sigma_{1,3} + \sigma_{1,2} + \sigma_{1,1} \tag{8}$$