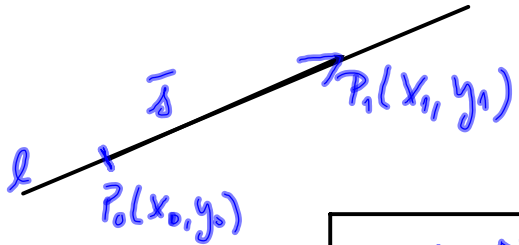
4.1 SUORA TASOSSA

Suoran suuntavektori



$$k = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

$$k = \frac{s_2}{s_x}$$

$$\bar{s} = (x_2 - x_1)\bar{i} + (y_2 - y_1)\bar{j} = s_x\bar{i} + s_y\bar{j}$$

$$\bar{s} = \bar{i} + k\bar{j}$$

$l_1 \parallel l_2 \iff \bar{s}_1 \parallel \bar{s}_2$

$l_1 \perp l_2 \iff \bar{s}_1 \perp \bar{s}_2$

$$\cos\beta = \frac{\bar{s}_1 \cdot \bar{s}_2}{|\bar{s}_1||\bar{s}_2|}$$

Suoran normaalivektori

vektori $\bar{n} = a\bar{i} + b\bar{j}$ on suoran $l: ax + by + c = 0$ normaalivektori

$l_1 \parallel l_2 \iff \bar{s}_1 \parallel \bar{s}_2 \iff \bar{n}_1 \parallel \bar{n}_2$

$l_1 \perp l_2 \iff \bar{s}_1 \perp \bar{s}_2 \iff \bar{n}_1 \perp \bar{n}_2$

Pisteen etäisyys suorasta

piste (x_0, y_0) $\quad ax + by + c = 0$

$$d = \frac{|ax_0 + by_0 + c|}{\sqrt{a^2 + b^2}}$$