line-intersection

$$P(t) = P_0 + t\,\vec{\boldsymbol{v}}$$
$$Q(s) = Q_0 + s\,\vec{\boldsymbol{w}}$$

$$P_0 + t\,\vec{\boldsymbol{v}} \;=\; Q_0 + s\,\vec{\boldsymbol{w}}$$

$$t\,\vec{\boldsymbol{v}} - s\,\vec{\boldsymbol{w}} \;=\; Q_0 - P_0$$

```
P(t) = P_{0} + t bold vec v newline
Q(s) = Q_{0} + s bold vec w newline
newline
P_{0} + t bold vec v ~ = ~ Q_{0} + s bold vec w newline
newline
t bold vec v - s bold vec w ~ = ~ Q_{0} - P_{0} newline
```