(1) (Serge Lang p40/2) Let \( y = mx + b \) and \( y = m'x + c \) be the equations of two lines in the plane. Write down vectors perpendicular to these lines. Show that these vectors are perpendicular to each other if and only if \( mm' = -1 \).

**Proof.** The equations of two lines can be written as
\[
mx - y = -b, \quad m'x - y = -c.
\]
Then vectors \((m, -1)\) and \((m', -1)\) are perpendicular to these lines, respectively. The vectors \((m, -1)\) and \((m', -1)\) are perpendicular to each other if and only if
\[
(m, -1) \cdot (m', -1) = 0
\]
or equivalently \( mm' = -1 \). \( \square \)