MA341 — Homework #3
Due Wednesday, February 12, in class

1. (a) Prove "from scratch" (not quoting other theorems) that if two different lines $a_1x + b_1y = c_1$ and $a_2x + b_2y = c_2$ intersect, then their point of intersection is given by:

$$x = \frac{c_1b_2 - c_2b_1}{a_1b_2 - a_2b_1}, \qquad y = \frac{a_1c_2 - a_2c_1}{a_1b_2 - a_2b_1}.$$

   (b) Under what geometric conditions, exactly, will the denominators in the above expression equal zero? Justify your answer.