4 DO NOT USE A CALCULATOR IN THIS QUESTION.

(a) Find the exact distance between the two points where the curve $9(x-1)^2+4(y-3)^2=36$ cuts the y-axis. [4]

(b) Find the coordinates of the points where the curve with equation $2x^2+83xy=x^3y-20x$ intersects the curve with equation $y=\frac{1}{x}$. Give each of your answers in the form $a+b\sqrt{c}$, where a and b are rational and c is the smallest integer possible. [6]