6.(9+4 points) (a) Find the values of a and b so that the function $f(x) = axe^{-bx}$ has a local maximum at the point (3, 12).

(b) Does f have any inflection points for $x > 0$? If so, for what value(s) of x? If not, how do you know? [Use the function you found for part (a) here. Show your work or your reasoning.]