$$\frac{\sqrt{{v_{\text{esc},p_D}}^2(r_E)+{v_{0,p_D}}^2}}{{v_{\text{esc grav},p_D}}^2(r_E)+{v_{0,p_D}}^2} - (v_0, \frac{m_{e_D}}{m_{p_D}}, \frac{\alpha_D}{\alpha}, f_D) = (20\ \text{kms}^{-1},\ 0.0001,\ 1,\ 0.0$$