Problem 1

Let $Z \sim \dfrac{X/m}{Y/n} \sim F_{m,n}$

$$f(z) = \frac{(m/n)\Gamma((m+n)/2)(mz/n)^{m/2-1}}{\Gamma(m/2)\Gamma(n/2)(1+mz/n)^{m+n}/2}$$