Exercise 1

1.Use the relative permeability data as shown in table to plot the fractional flow curve for a linear reservoir system with the following properties:

Dip angle = 0^0 , absolute permeability =50 md, B_o=1.20 bbl/STB

B_w =1.05 bbl/STB , u_w= 0.5cp , Cross-sectional area A = 25000 ft^2

$\Delta\rho = 0.304 g/cm^3$

S_w	k_{ro}	k_{rw}	k_{ro}/k_{rw}	u_0 = 0.5cp	u_0 = 1.0cp	u_0 = 5cp	u_0 = 10cp
				$fw_{0.5}$	$fw_{1.0}$	fw_5	fw_{10}
0.24	0.95	0					
0.3	0.89	0.01					
0.4	0.74	0.04					
0.5	0.45	0.09					
0.6	0.19	0.17					
0.65	0.12	0.22					
0.7	0.06	0.28					
0.75	0.03	0.36					
0.78	0	0.41					

Seek for：

(1)Plot the fractional flow curve for the following values of oil viscosity:

u_0 = 0.5，1.0，5，and 10 cp.

(2)What conclusions can you draw?