1. Consider the Tahama village water supply system schematically shown below.

Assuming "smooth" pipes:

(a) Under no-flow conditions, what is the maximum pressure (kPa) available at home "A" on 10th st.?  

(b) If a leak of $Q = 0.15 \text{ m}^3/\text{s}$ develops at the end of 9th St., what pressure (kPa) is available at home "B"? (Ignore fittings).

2. Consider streamflow in a broad channel (when $b \gg y$). Derive an equation for the channel slope (\%)) at which flow transitions to supercritical conditions. If Manning's $n = 0.020$ and $y_c = 0.15 \text{ m}$, what is the threshold slope?