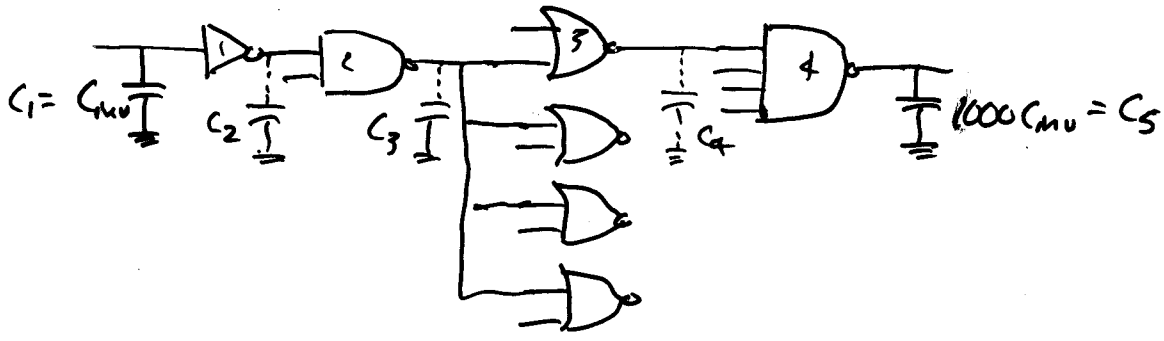
Problem Session 7pm

P6.12



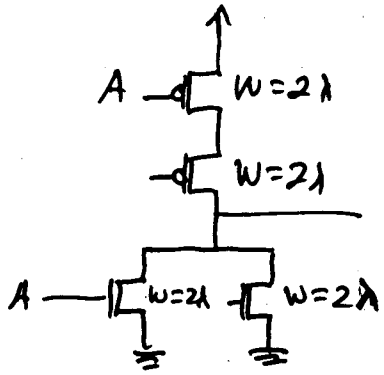
$$C_j = \frac{LE_j \, C_{j+1} \times \beta E}{\gamma E}$$

4?

$$C_3 = \frac{LE_4 \times C_4 \times \beta E_4}{\gamma E} = \frac{\left(\frac{5}{3}\right)(173.21)(1)}{11.55} = 25$$

$$C_2 = \frac{LE_3 \times C_3 \times \beta E_3}{\gamma E} = \frac{\left(\frac{4}{3}\right)(25)(4)}{11.55} = 11.55$$

P6.9c



Pull up = λ

Pull down = 2λ

LE_R & LE_F

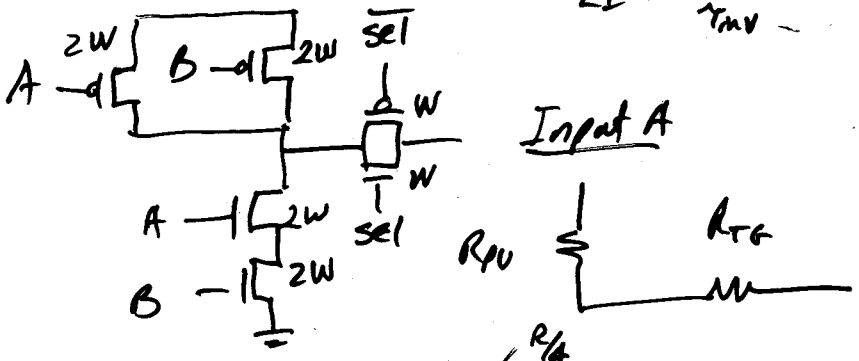
$$LE = \frac{(R_{eff} C_{in})_{gate}}{(R_{eff} C_{ix})_{inv}}$$

~~$LE_{NAND} = R_{eqn}\left(\frac{2}{W}\right) C_g W = R_{eqn} C_g L_n$~~

$$LE_R = \frac{4 R_{eqn} (2 C_g W)}{R_{eqn} (3 C_g W)} = \frac{8}{3} \qquad LE_F = \frac{R_{eqn} (2 C_g W)}{R_{eqn} (3 C_g W)} = \frac{2}{3}$$

Ex. 7.5

$LE = \frac{\tau_{gate}}{\tau_{inv}}$ $\tau = R_{eff} C_{in}$



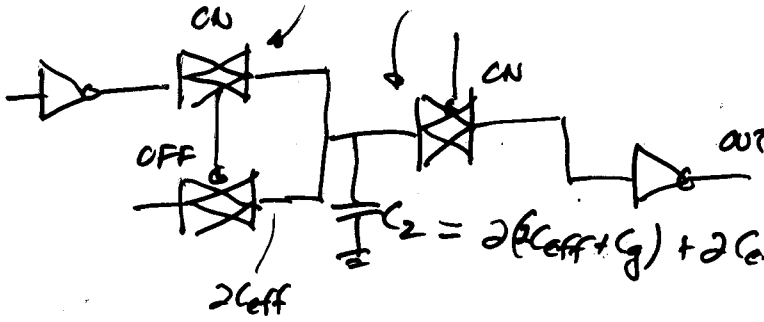
$$LE_A = \frac{(4W)(R+R)}{3W\,R} = \frac{4 \cdot 2R}{3R} = \frac{8}{3}$$

Input at sel

$$LE_{sel} = \frac{W(2R)}{3WR} = \frac{2}{3}$$

Ex. 7.4

$2C_{eff} + C_g$



$$C_2 = 2(2C_{eff} + C_g) + 2C_{eff} = [3(2C_{eff}) + 2C_g]W$$