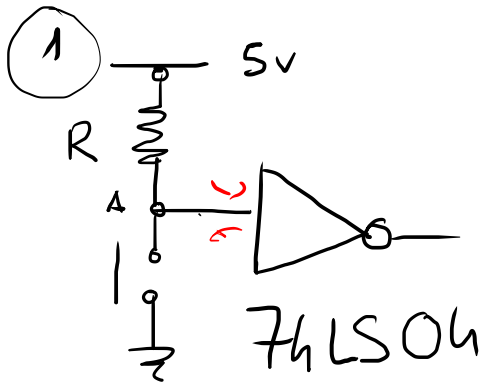
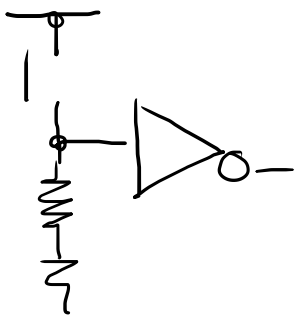
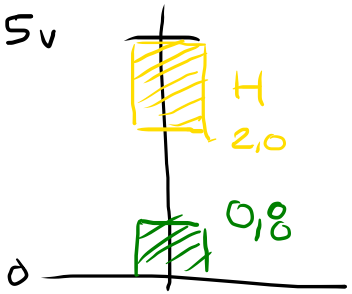
238.





$V_{IH} = 2V$

$V_{IL} = 0,8V$



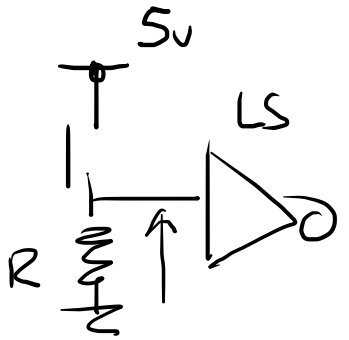
$I_{IH} = 40\,\mu A$

$I_{IL} = -1,6\,mA$

$R = 10K \qquad V = iR = 10K \cdot 40\,\mu A = 10 \cdot 10^3 \cdot 40 \cdot 10^{-6} = 400 \cdot 10^{-3} = 0,4V$

(A) $V_H = 5 - 0,4 = 4,6V$

$P = \frac{V^2}{R} = \frac{5^2}{10K} = 2,5 \cdot 10^{-3} = \underline{2,5mW}$



$V_{IL} = 0{,}8\ V$

$I_{IL} = -1{,}6\ mA$

$R = 10K \qquad V = IR = 1{,}6_m \cdot 10_K = 16\ V$

$R = 1K \qquad V = 1{,}6 \cdot 10^{-3} \cdot 1 \cdot 10^{3} = 1{,}6\ V.$

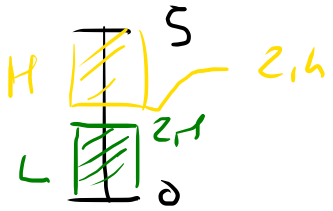
$$R = \frac{V}{I} = \frac{0{,}8}{1{,}6\,mA} = \frac{0{,}8}{1{,}6 \cdot 10^{-3}} = 0{,}5 \cdot 10^{3} = 500\,\Omega \approx 470\,\Omega$$

$$i = \frac{V}{R} = \frac{5\ V}{470\,\Omega} \approx 10\,mA$$

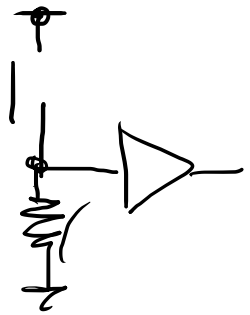
74HC...

$V_{IL} = 2{,}1\ V$

$V_{IH} = 2{,}4\ V$



$I_{Leakage} \cong 1\ \mu A$



10K

$V = R \cdot I = 10K \cdot 1 \cdot \mu A =$

$= 10^{1} \cdot 10^{3} \cdot 1 \cdot 10^{-6} =$

$= 10^{-2} = 0{,}01\ V$