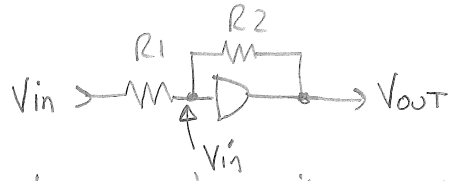
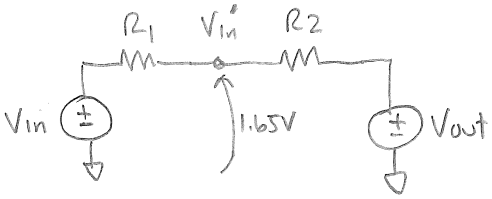
8. The Schmitt-trigger circuit:



Since the output resistance of the buffer is zero ohms and its input resistance is roughly ∞, its obvious that the $5k\Omega$ input constraint is met when $R1 + R2 = 5000$.

In the condition where the output is 3.3v and the input voltage has just reached the lower threshold, we have:



By superposition:

$$V_{in}' = \frac{R_2}{R_1+R_2} V_{in} + \frac{R_1}{R_1+R_2} V_{out}$$

With our constraint of $R_1 + R_2 = 5000$ and the given thresholds, for the case where the input has fallen to the lower threshold we have:

$$1.65 = \left(\frac{R_2}{5000}\right) 1.25 + \left(\frac{R_1}{5000}\right) 3.3$$

(A) $8250 = 1.25R_2 + 3.3R_1$

In the other case where the input has just risen to the upper threshold:

$$1.65 = \frac{R_2}{5000}(2.05) + 0$$

thus $R_2 = \underline{\underline{4020\,\Omega}}$

solving for R_1 using (A):

$$8250 = 1.25(4020) + 3.3R_1$$

$$\underline{\underline{R_1 = 977\,\Omega}}$$

Our circuit is thus: