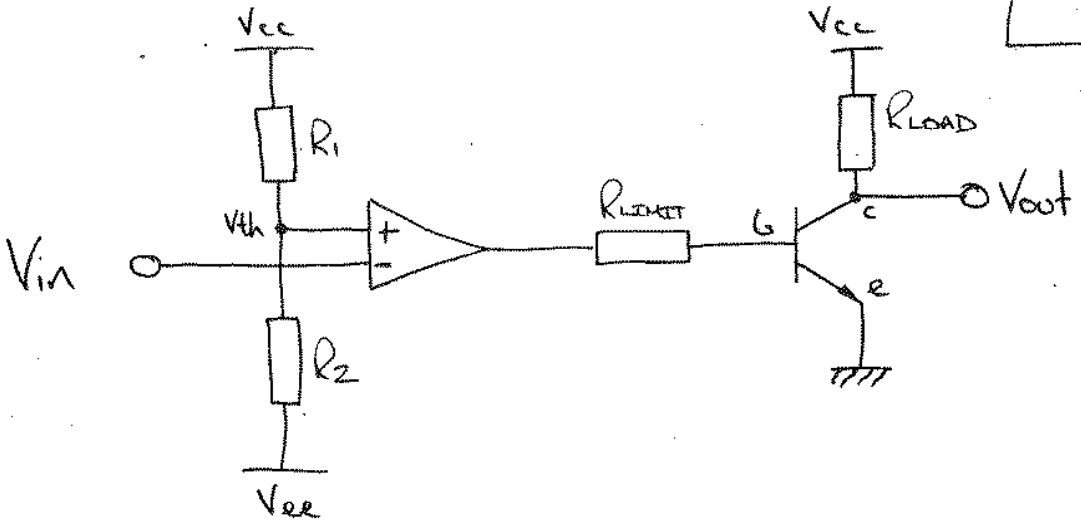
Standard Comparator

$V = IR$ $\quad \frac{V}{R} = I$ $\quad \frac{V}{I} = R$



Using ohm's law; $V_{th} = V_{ee} + I_{R_1} \cdot R_2$

$$I_{R_1} = \frac{V_{cc} - V_{ee}}{R_1 + R_2}$$

So;

$$V_{th} = V_{ee} + \frac{V_{cc} - V_{ee}}{R_1 + R_2} \cdot R_2$$

$$V_{th} = V_{ee} + \frac{R_2 (V_{cc} - V_{ee})}{R_1 + R_2}$$

$$= \frac{V_{ee}}{1} + \frac{R_2 (V_{cc} - V_{ee})}{R_1 + R_2}$$

$$= \frac{V_{ee}(R_1 + R_2) + R_2 (V_{cc} - V_{ee})}{R_1 + R_2}$$

$$= \frac{V_{ee} R_1 + V_{ee} R_2 + V_{cc} R_2 - V_{ee} R_2}{R_1 + R_2}$$

$$V_{th} = \frac{V_{ee} R_1 + V_{cc} R_2}{R_1 + R_2} \Longleftarrow$$

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