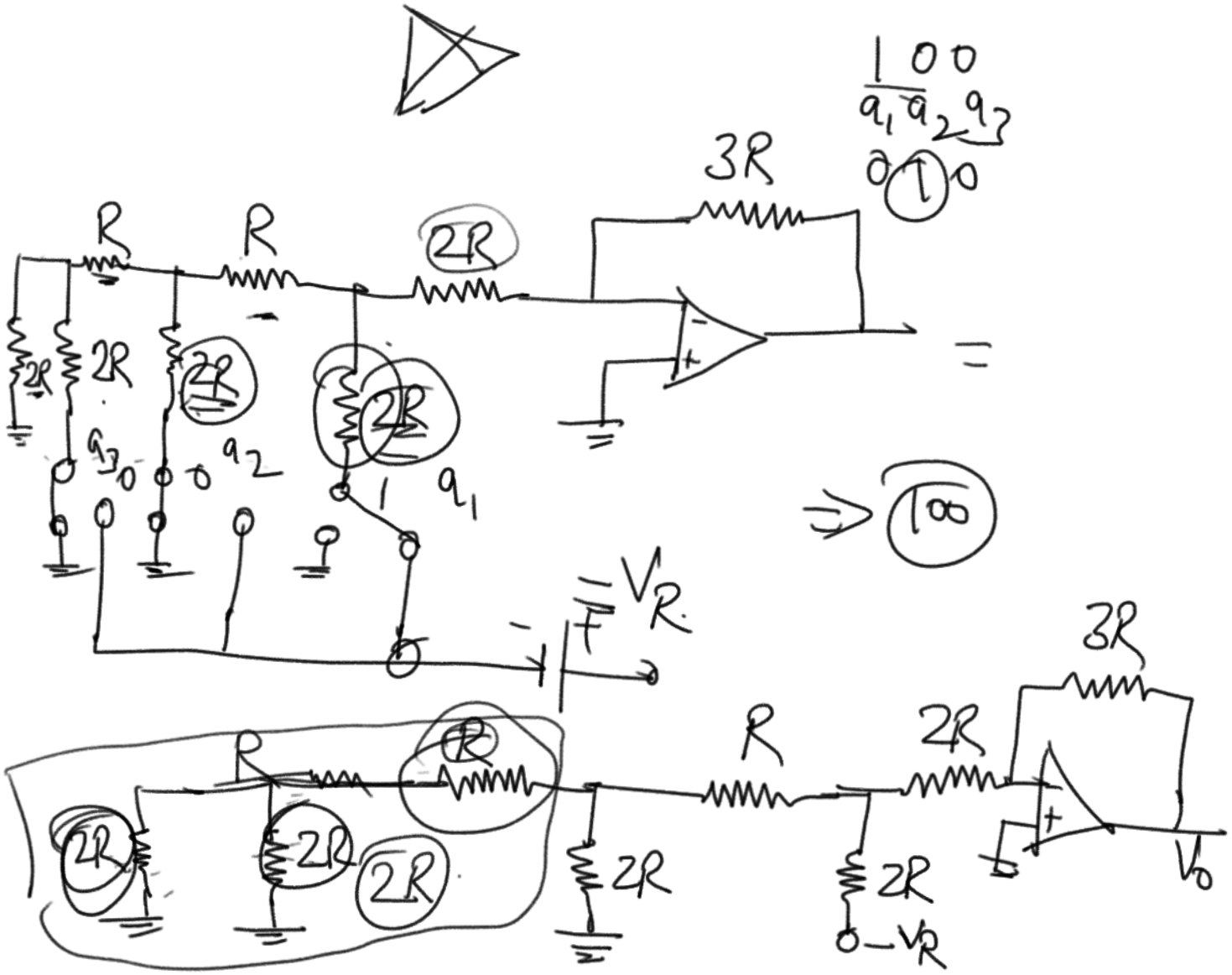
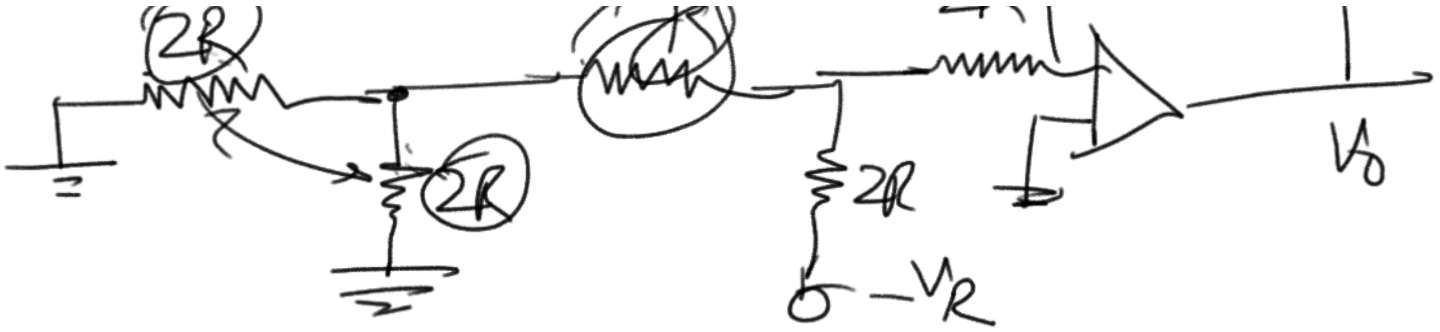
R-2R ladder

Tuesday, February 8, 2022 10:57 AM



$$R_{eq} = \frac{2R \times 2R}{2R + 2R} = \frac{4R^2}{4R} = R$$

$$R_{eq} = R + R = 2R$$



R_{th} ⇒

V_{th} ⇒

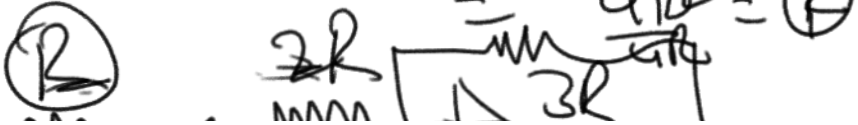
$$V_{th} = \frac{2R(-V_R)}{2R+2R}$$

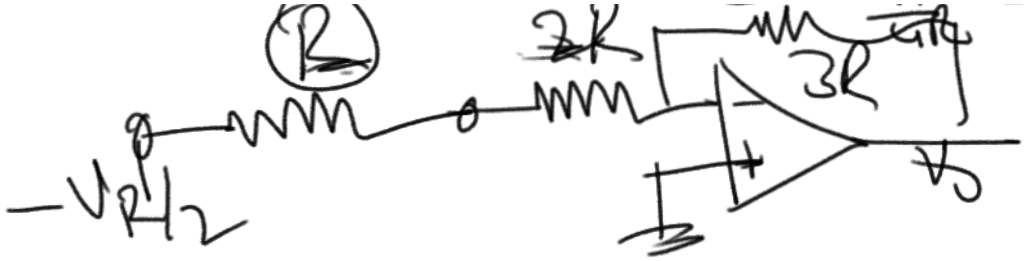
$$V_{th} = \frac{2R(-V_R)}{2+2R} = \frac{-V_R}{2}$$

$$\boxed{V_{th} = -\frac{V_R}{2}}$$

$$R_{eq} = 2R \| 2R = \frac{2R \times 2R}{4R}$$

$$= \frac{4R}{4} = R$$





$$V_0 = -\frac{(3R)}{3R}\left(-V_{R/2}\right)$$

$a_2 = 1$ (00)

$$V_0 = V_{R/2} = \frac{8}{2} = 4V$$

$a_1\ a_0\ a_3 = 100$

(101)

$$V_0 = \frac{V_R}{2} = \frac{16}{2} = 8V$$

1000 =

$$V_R = 2^n = 2^4 = 16$$

$2^5 = 32$

$V_0 = 8V$

$V_0 = 8V$

$110000 \Rightarrow 16V$

$2^5 = (32)$

$V_0 = \frac{32}{2} = (16)$