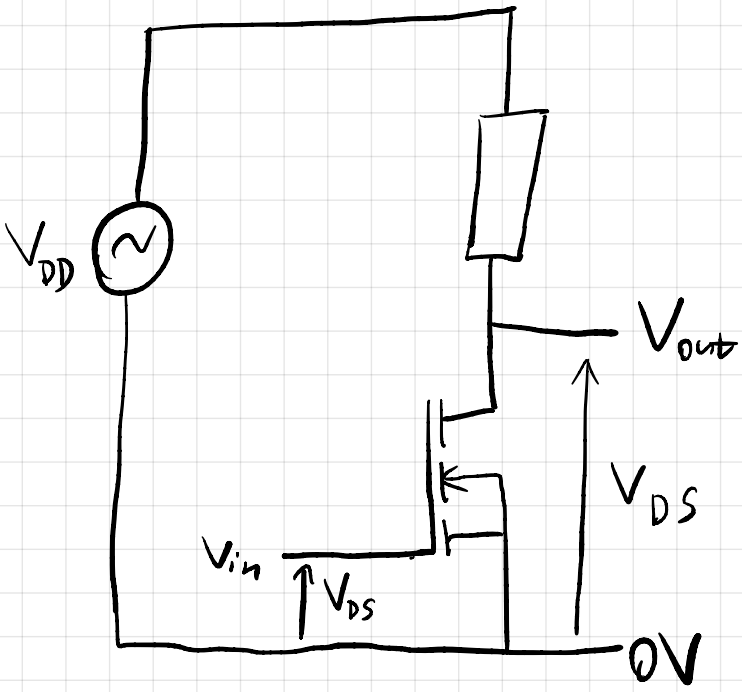
NEELU SARASWATI BHATLA (SRNS2)

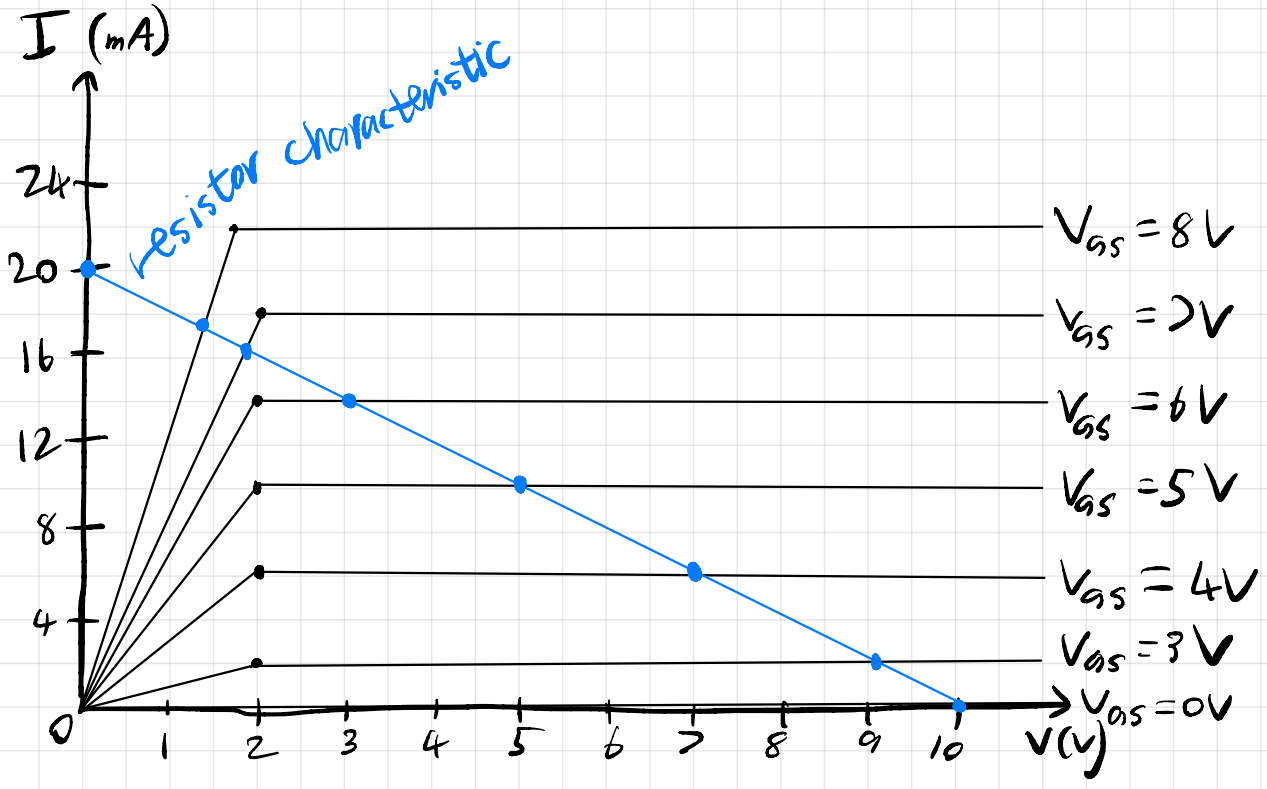
1.

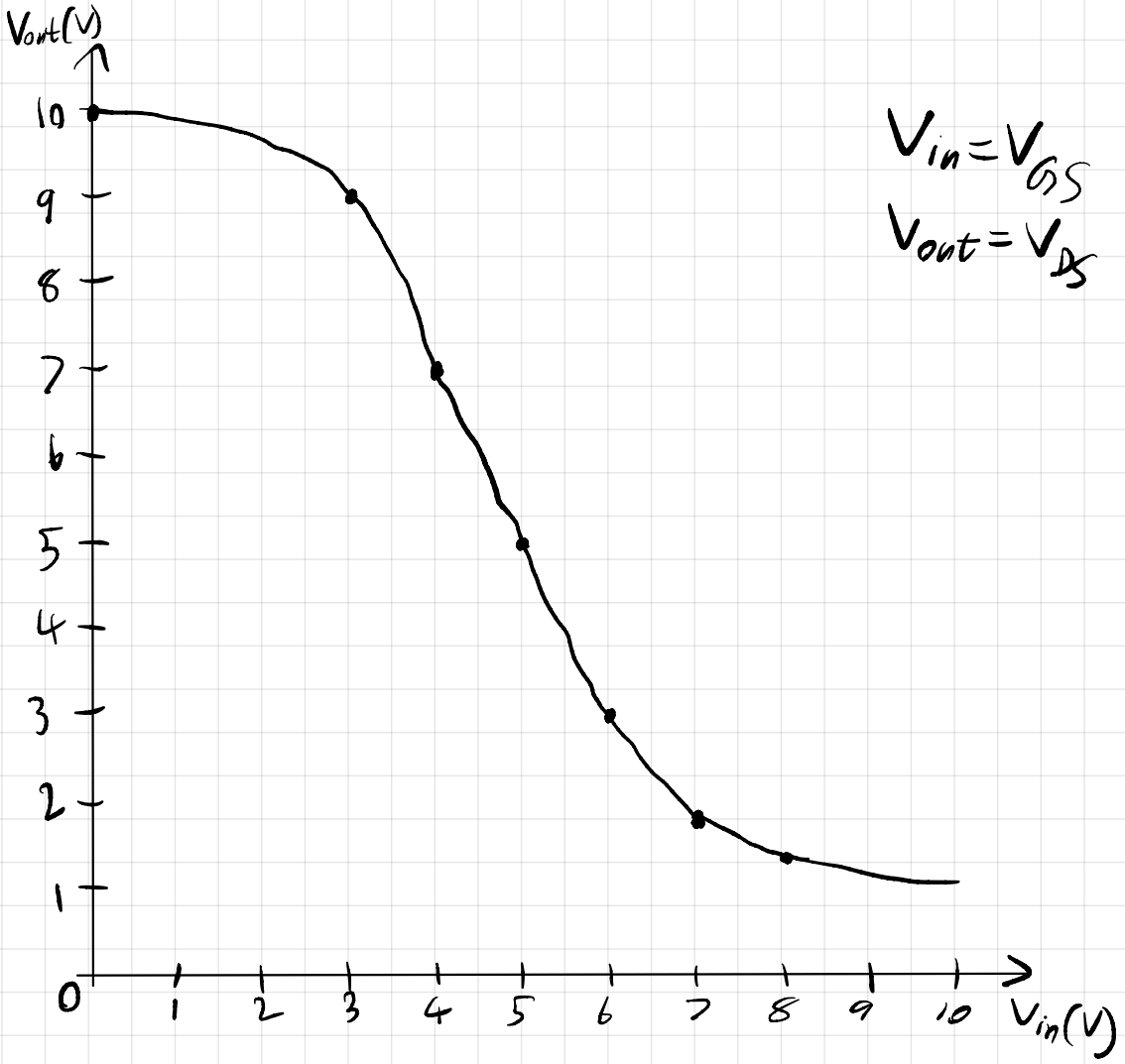


2. $V_{DD} = 10V$
$R = 500\Omega$

When $V_{DS} = 0V$,
$V_R = 10V$
$I_R = \frac{10}{500} = 0.02A = 20mA$

When $V_{DS} = 10V$,
$V_R = 0V$
$I_R = \frac{0}{500} = 0mA$





$V_{in} = V_{GS}$

$V_{out} = V_{DS}$

3. When $V_{in} = 8V$, $V_{out} \approx 1.5V$, so $V_R \approx 9.5V$

$$P_R = \frac{V_R^2}{R} = \frac{9.5^2}{500} = \underline{0.18W}$$

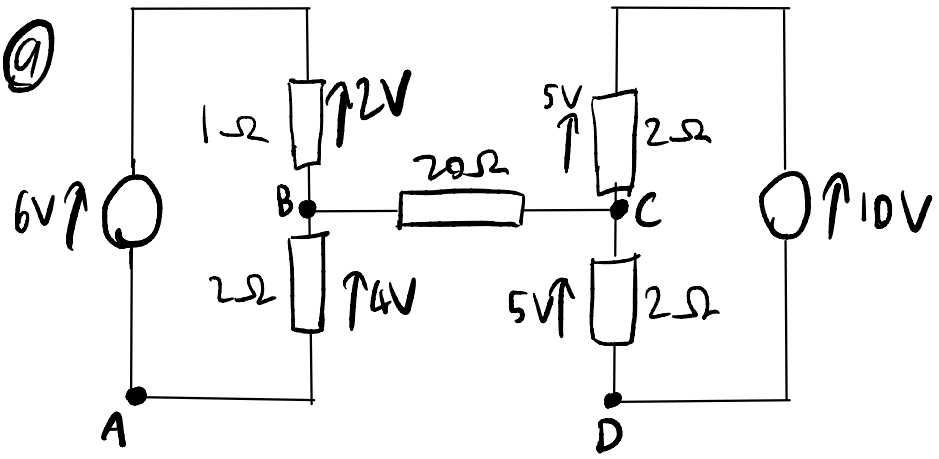
4. ⓐ $R_T = 1\Omega + 2\Omega = 3\Omega$

$$V = \frac{1}{3} \times 6 = \underline{2V}$$

ⓑ $V_1 = 6 - 2 = \underline{4V}$

ⓒ $P = \frac{V^2}{R} = \frac{16}{4} = \underline{4W}$

5. (a)

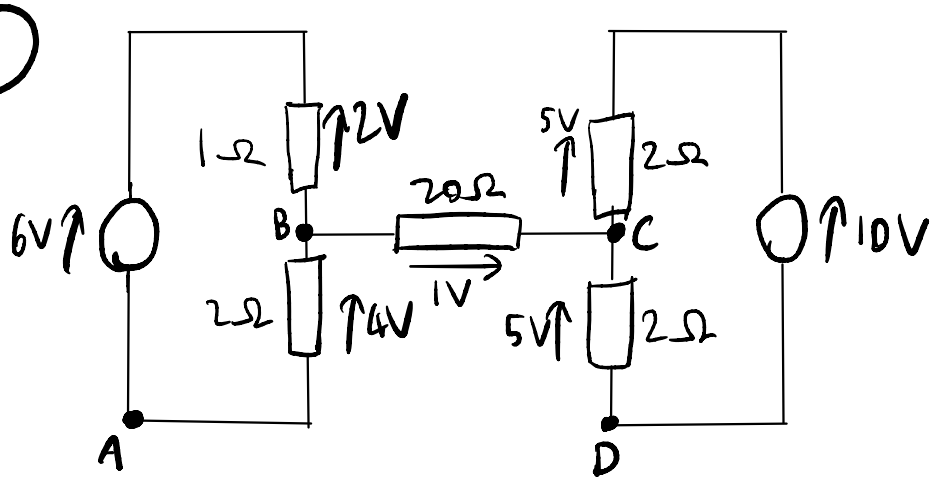


$V_B = 4V$ and $V_C = 5V$

$\therefore$ V across 20Ω resistor $= 5 - V = 1V$

$\therefore$ I through 20Ω resistor $= \frac{V}{R} = \frac{1}{20} = \underline{0.05A}$

(b)



$V_{AB} = \underline{4V}$

$V_{AC} = 1 + 4 = \underline{5V}$

$V_{AD} = -5 + 1 + 4 = \underline{0V}$