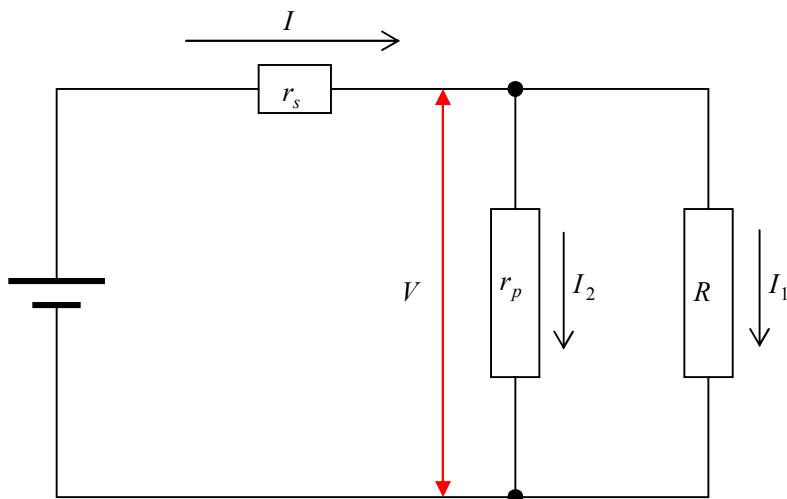


115. 電圧と電流の関係

(1)



ア

$$R' = \frac{V}{I}, \quad I = I_1 + I_2, \quad I_1 R = I_2 r_p = V \text{ より}$$

$$R' = \frac{V}{I_1 + I_2} = \frac{V}{\frac{V}{R} + \frac{V}{r_p}} = \frac{r_p R}{r_p + R} \quad \dots \text{(答)}$$

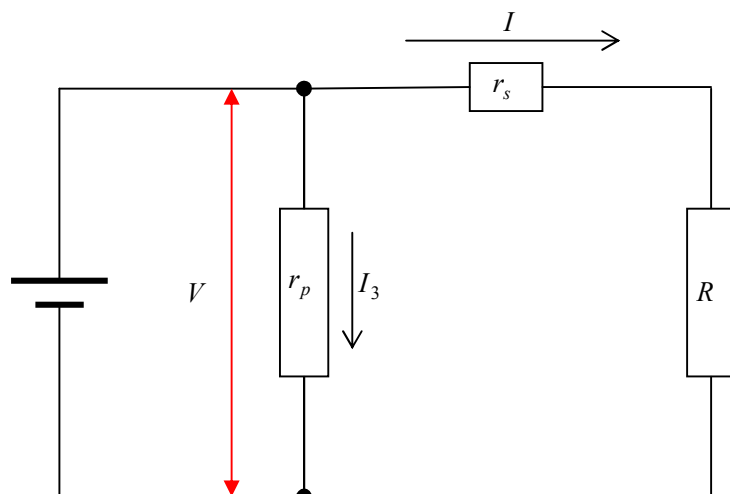
イ

$$\left| \frac{\Delta R}{R} \right| = \left| \frac{R' - R}{R} \right| = \frac{R - R'}{R} = \frac{R - \frac{r_p R}{r_p + R}}{R} = \frac{R}{r_p + R} \quad \dots \text{(答)}$$

ウ

$$\left| \frac{\Delta P}{P} \right| = \left| \frac{P' - P}{P} \right| = \left| \frac{IV - I_1 V}{I_1 V} \right| = \left| \frac{I}{I_1} - 1 \right| = \left| \frac{\frac{V}{R'}}{\frac{V}{R}} - 1 \right| = \left| \frac{R}{R'} - 1 \right| = \left| \frac{R}{\frac{r_p R}{r_p + R}} - 1 \right| = \frac{R}{r_p} \quad \dots \text{(答)}$$

(2)



㊦

$$R' = \frac{V}{I} = \frac{(r_s + R)I}{I} = r_s + R \quad \therefore \left| \frac{\Delta R}{R} \right| = \frac{R' - R}{R} = \frac{r_s}{R} \quad \dots \text{(答)}$$

㊧

$$\left| \frac{\Delta P}{P} \right| = \frac{P' - P}{P} = \frac{I^2 R' - I^2 R}{I^2 R} = \frac{R' - R}{R} = \frac{r_s}{R} \quad \dots \text{(答)}$$