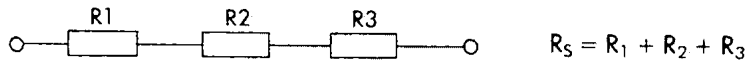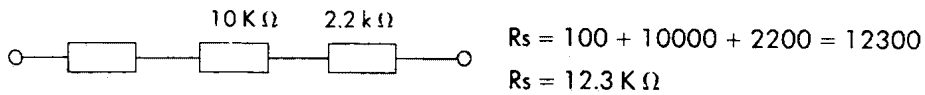## EQUATIONS AND CALCULATIONS

The following (Fig. 6.12) are examples of the electrical electronic equations and calculations you need to be familiar with.
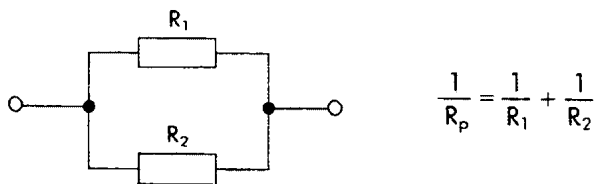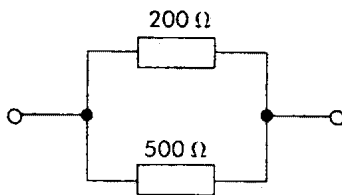
► **Resistors in series**

$$R_S = R_1 + R_2 + R_3$$

e.g.

$$Rs = 100 + 10000 + 2200 = 12300$$
$$Rs = 12.3 \, K\Omega$$

► **Resistors in parallel**

$$\frac{1}{R_p} = \frac{1}{R_1} + \frac{1}{R_2}$$

► **Resistors in series and parallel**

e.g.

e.g.

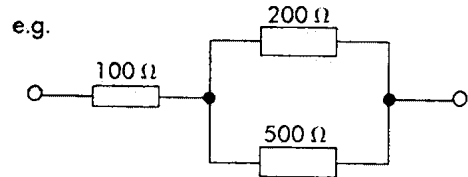$$\frac{1}{R_p} = \frac{1}{200} + \frac{1}{500}$$

$$\frac{1}{R_p} = \frac{2}{700}$$

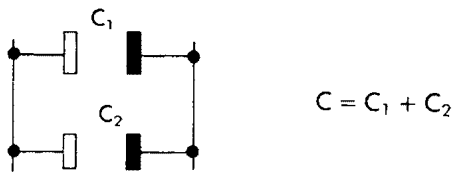$$R_p = \frac{700}{2} \qquad Rp = 350 \, \Omega$$

$$R_{ps} = 100 + \left(\frac{1}{200} + \frac{1}{500} \right)$$
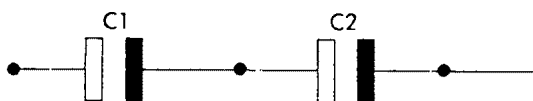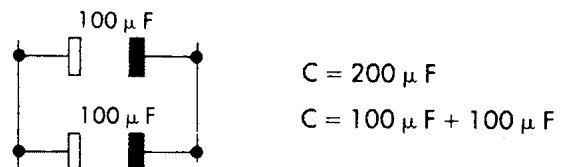
$$R_{ps} = 100 + \left(\frac{2}{700} \right)$$

$$R_{ps} = 100 + \left(\frac{700}{2} \right)$$

$$R_{ps} = 100 + 350 \qquad R_p = 450 \, \Omega$$

► **Capacitors in parallel**

e.g.

$$C = C_1 + C_2$$

$$C = 200 \, \mu F$$
$$C = 100 \, \mu F + 100 \, \mu F$$

e.g.

$$\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2}$$

$$\frac{1}{C} = \frac{1}{220} + \frac{1}{220}$$

$$\frac{1}{C} = \frac{1+1}{220} = \frac{2}{220}$$

$$C = \frac{220}{2} = 110 \, \mu F$$