

67. When connected in series, the rate at which electric energy dissipates is  $P_s = \mathcal{E}^2/(R_1 + R_2)$ . When connected in parallel, the corresponding rate is  $P_p = \mathcal{E}^2(R_1 + R_2)/R_1R_2$ . Letting  $P_p/P_s = 5$ , we get  $(R_1 + R_2)^2/R_1R_2 = 5$ , where  $R_1 = 100\,\Omega$ . We solve for  $R_2$ :  $R_2 = 38\,\Omega$  or  $260\,\Omega$ .