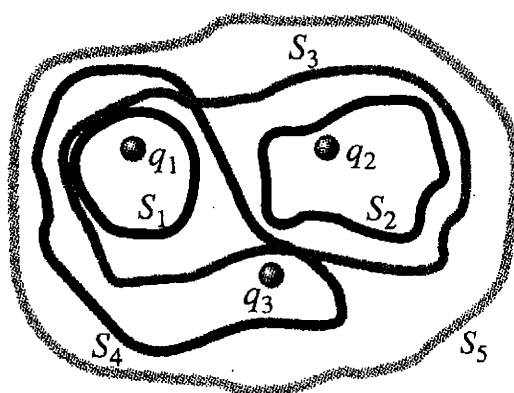


**22.8.** The three small spheres shown in Fig. 22.33 carry charges  $q_1 = 4.00 \text{ nC}$ ,  $q_2 = -7.80 \text{ nC}$ , and  $q_3 = 2.40 \text{ nC}$ . Find the net electric flux through each of the following closed surfaces shown in cross section in the figure: (a)  $S_1$ ; (b)  $S_2$ ; (c)  $S_3$ ; (d)  $S_4$ ; (e)  $S_5$ . (f) Do your answers to parts (a)–(e) depend on how the charge is distributed over each small sphere? Why or why not?

Figure **22.33** Exercise 22.8.



Surface	What it encloses
$S_1$	$q_1$
$S_2$	$q_2$
$S_3$	$q_1$ and $q_2$
$S_4$	$q_1$ and $q_3$
$S_5$	$q_1$ and $q_2$ and $q_3$