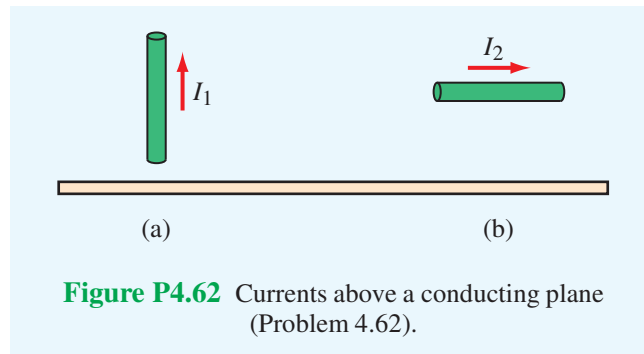
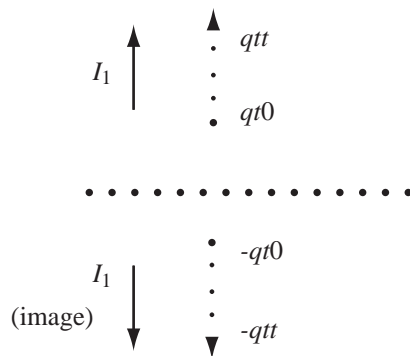


**4.62** Conducting wires above a conducting plane carry currents  $I_1$  and  $I_2$  in the directions shown in Fig. P4.62. Keeping in mind that the direction of a current is defined in terms of the movement of positive charges, what are the directions of the image currents corresponding to  $I_1$  and  $I_2$ ?



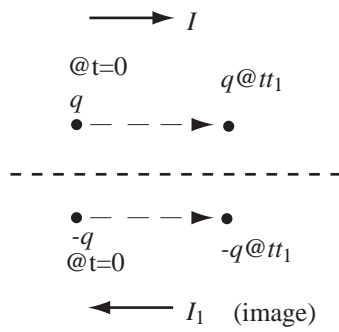
**Solution:**

**(a)** In the image current, movement of negative charges downward = movement of positive charges upward. Hence, image of  $I_1$  is same as  $I_1$ .



**Figure P4.62(a):** Solution for part (a).

**(b)** In the image current, movement of negative charges to right = movement of positive charges to left.



**Figure P4.62(b):** Solution for part (b).