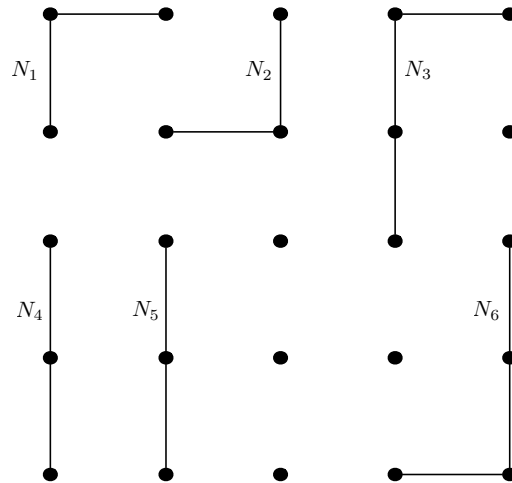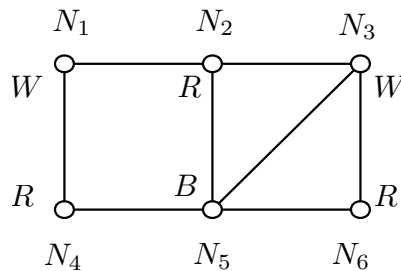► **Problem 13.3-04**

(a) Draw the line of sight graph G associated with the given net pattern.

(b) Determine $\chi(G)$ and find a corresponding partition of nets.

(c) How many tests would need to be carried out on a printed circuit board with the given net pattern to be determine if short circuits are present.

Solution. (a)

(b) The graph contains a triangle, so $\chi(G) \geqslant 3$. A 3-coloring is shown above. Thus, $\chi(G) = 3$. The corresponding partition of nets is $\{N_1, N_3\}$, $\{N_2, N_4, N_6\}$, $\{N_5\}$.

(c) The number of tests required would be $\binom{3}{2} = 3$. $\qquad\qquad$ □