Exercice 1:

Given the fact: #: "if processor i fails, then, instantly, all processors j≠i fail", which of the following assertions are true:

a: if a processor j≠i fails, then processor i has failed
b: if a processor j≠i fails, i may have failed or not
c: if a processor j≠i fails, then processor i has not failed.
d: if no processor j≠i fails, i may have failed or not
e: if no processor j≠i fails, then processor i has failed.
f: if no processor j≠i fails, then processor i has not failed.
g: if all processors j≠i fail, then processor i has failed
h: if all processors j≠i fail, i may have failed or not
i: if all processors j≠i fail, then processor i has not failed.
j: if some processor j≠i does not fail, i may have failed or not
k: if some processor j≠i does not fail, then processor i has failed.
l: if some processor j≠i does not fail, then processor i has not failed.

which of the previous assertions imply #

Exercice 2:

replace "instantly" with "eventually" in exercice 1.

Exercice 3:

Prove by induction that for every integer n, the number of edges in a complete graph of n vertices is n(n-1)/2
(the goal is to write down the prove by induction and refresh proof-writing, not to find the result with an easier method)