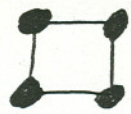


③ Find $P(G, x)$ for the graph

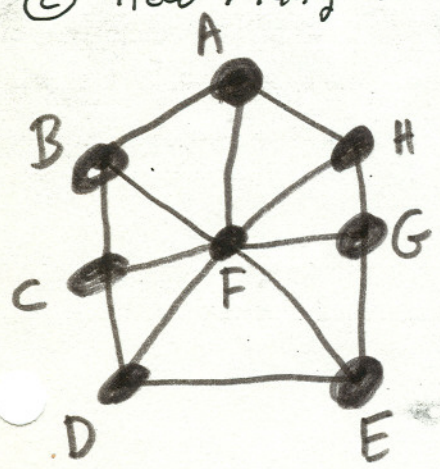


$$P(\text{square}) = P(\text{square}) - P(\text{triangle})$$

$$= x(x-1)^3 - x(x-1)(x-2)$$

④ In assigning work areas to workers, we want to be sure that if two such workers will interfere with each other, they will get different work areas. How many work areas are required if there are eight workers: A, B, C, D, E, F, G, H, and worker A interferes with workers B, H, F; worker B with A, C, F; worker C with B, D, F; worker D with C, E, F; worker E with D, F, G; worker F with A, B, C, D, E, G, H; worker G with E, F, H and worker H with A, G, F?

- Ⓐ Draw a Graph G for this problem.
- Ⓑ What is $\chi(G)$? Justify your answer.
- Ⓒ How many work areas are required?



$\chi = 4$
 4 work areas are required

The boundary requires 3 colors since it is a circuit of odd length. It is colorable with 3 colors. F must get a new color.