03-A-04

Triangulation

Art Gallery Problem

- Approximation & Classification

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Approximation

❖ [S. Ghosh, 1987]

A vertex domination set for a given n-gon P

can be found within $O(n^5 \log n)$ time, that

has no more than $O(\log n) * G(P)$ guards

❖ [CRS09] M. C. Couto, P. J. d. Rezende and C. C. d. Souza

An IP Solution to the Art Gallery Problem, SoCG 2009, pp. 88-89.

Classification

- Consider all polygons of size n ...
- As having been shown earlier,

$$\forall\ n \in \mathbb{N},\ \boxed{g(n)} = \boxed{\min}\ \{\ G(P)\ |\ |P| = |\partial^2 P| = n\ \} = 1 \qquad \text{//trivial}$$

Classification

❖ But on the other hand,

$$\forall\ n \in \mathbb{N},\ \boxed{g(n)} = \boxed{\max}\ \{\ G(P)\ |\ |P| = |\partial^2 P| = n\ \} = ?\quad //g(n) \le n$$