

Complexity

- Proof

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❖ Let D be the total circumference of all faces

planarity:
$$3f \le D = 2e$$

$$3v \leq D = 2e$$



$$v - e + f - c = 1$$

// c = 1 here

// For the 2 graphs here:

$$7 - 11 + 6 - 1 = 1$$

$$4 - 5 + 3 - 1 = 1$$

$$11 - 16 + 8 - 2 = 1$$



