Curiosidade
Desafio
Divertimento

PSIEM-
GEPEMAI

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Guimarães

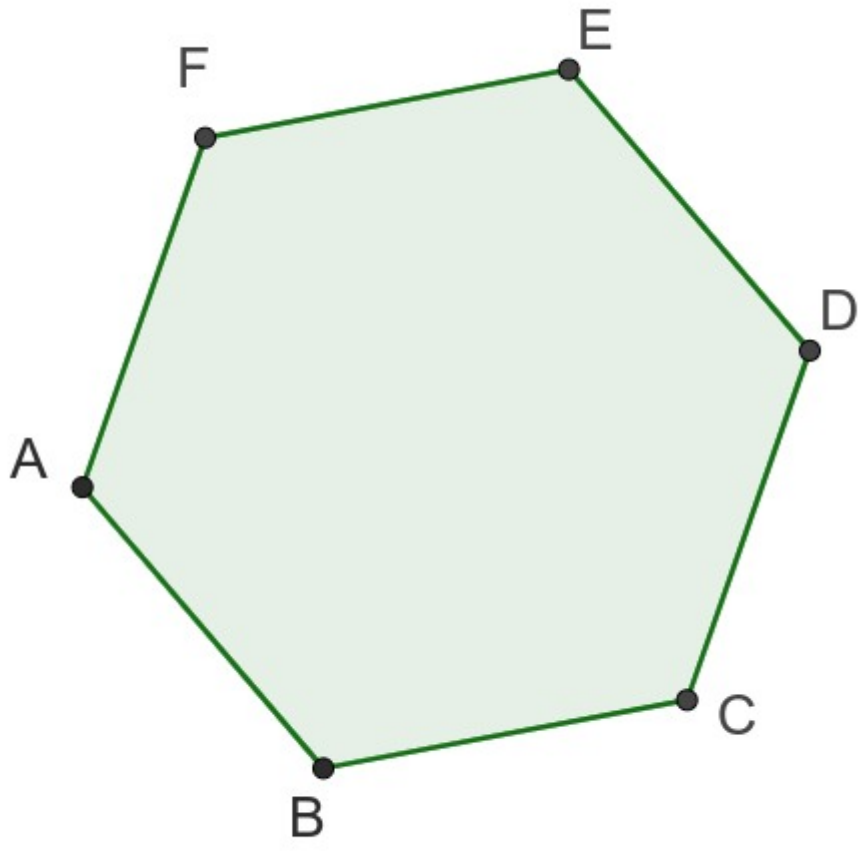
08/11/2021

Curiosidade

Como calcular o ângulo interno de um polígono regular?

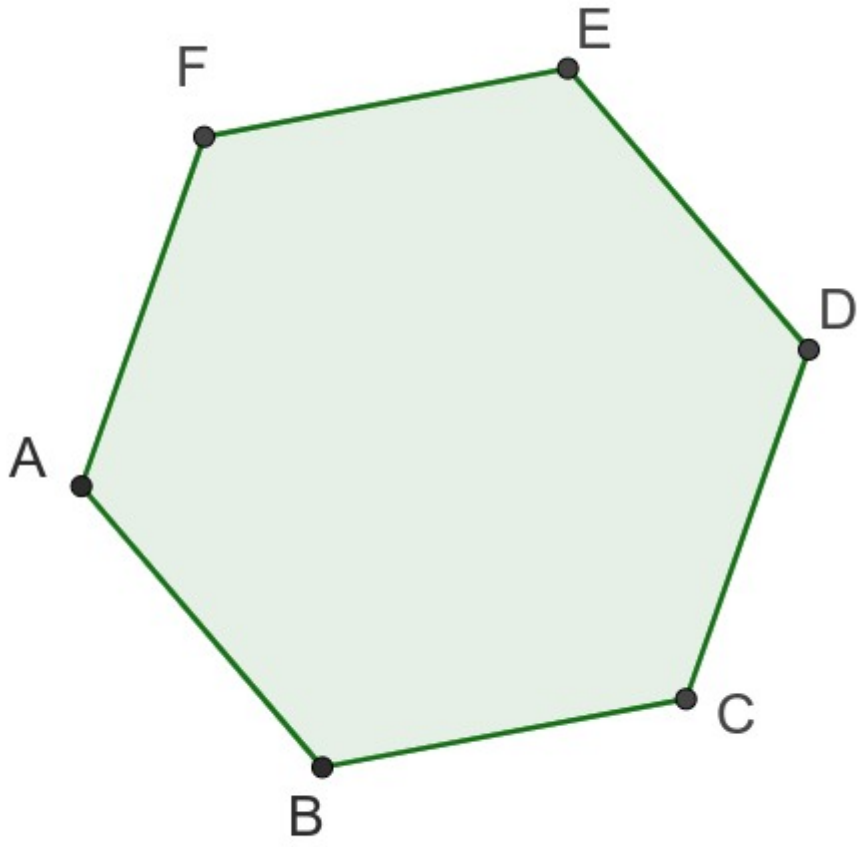
Curiosidade

Imagine uma pista de caminhada no formato a seguir...



Curiosidade

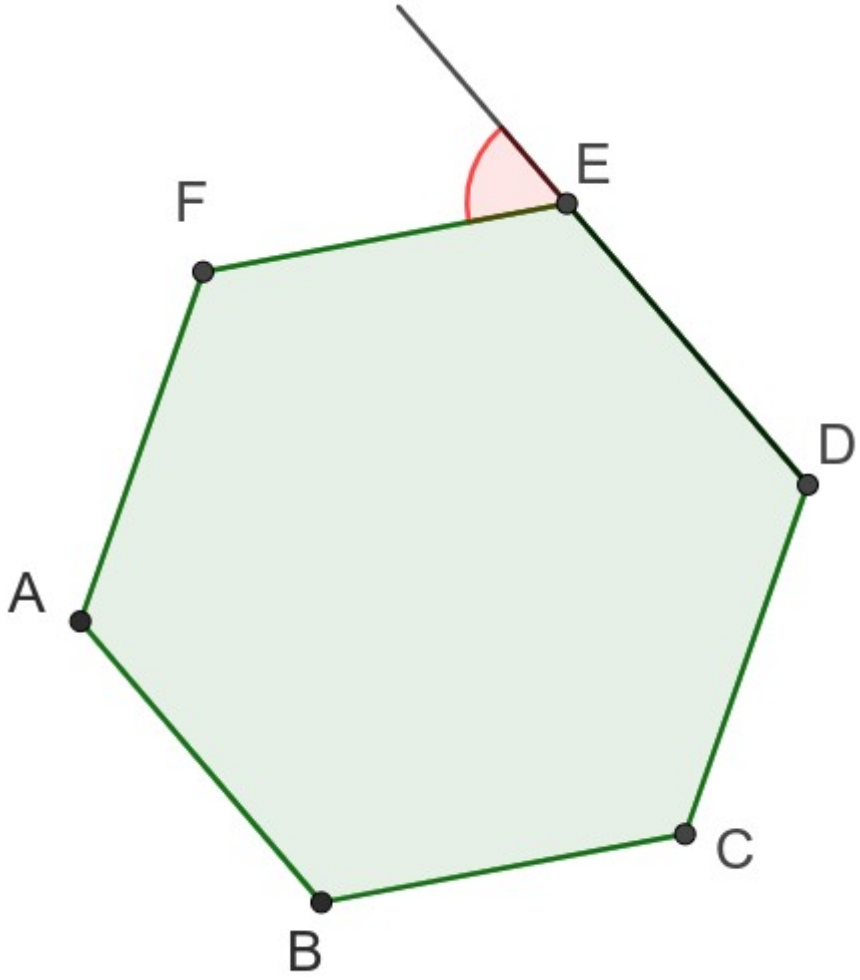
Imagine uma pista de caminhada
no formato a seguir...



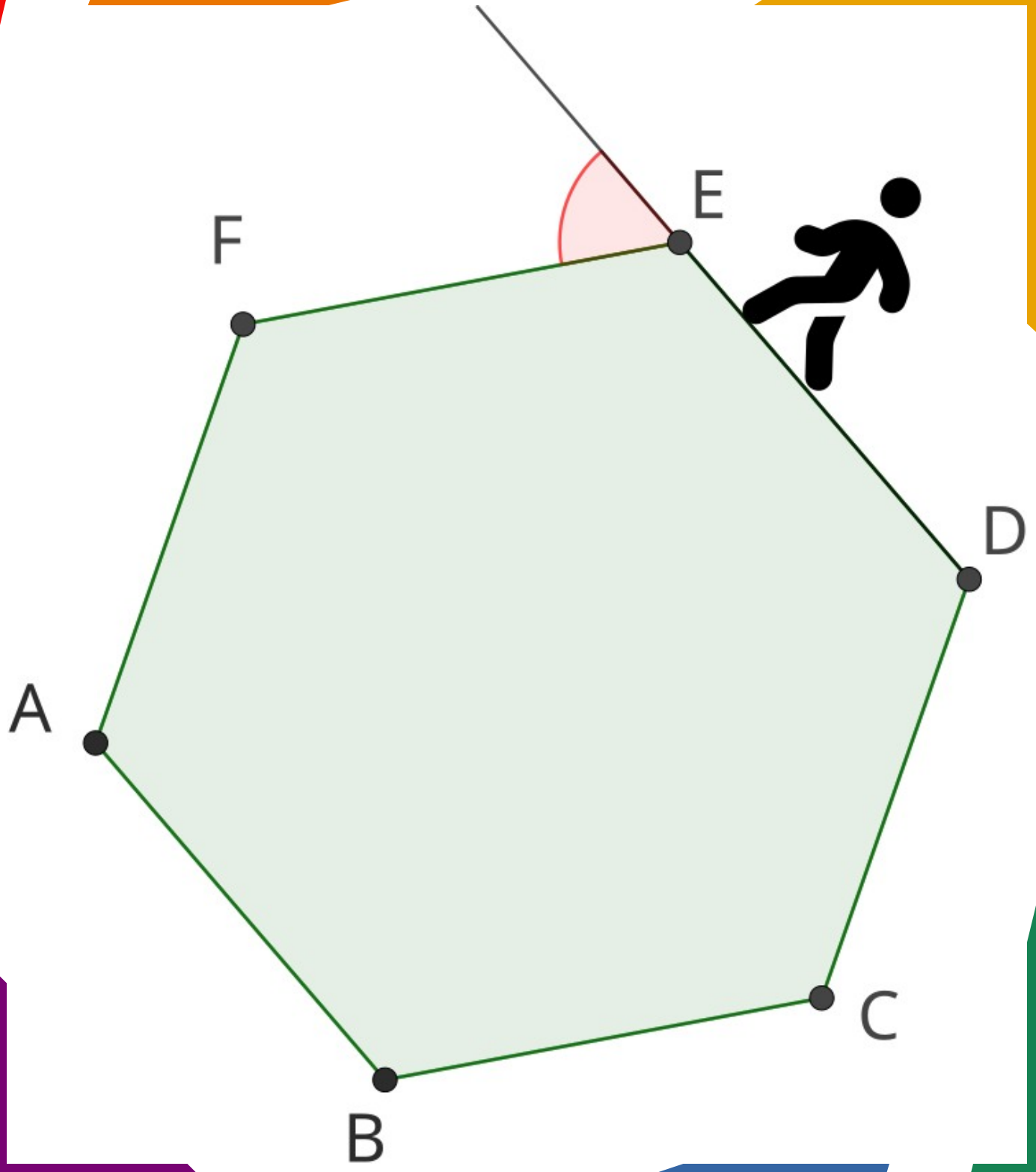
Hexágono regular
6 lados e 6 ângulos congruentes.

Curiosidade

Em cada canto (vértice) será preciso fazer um giro...

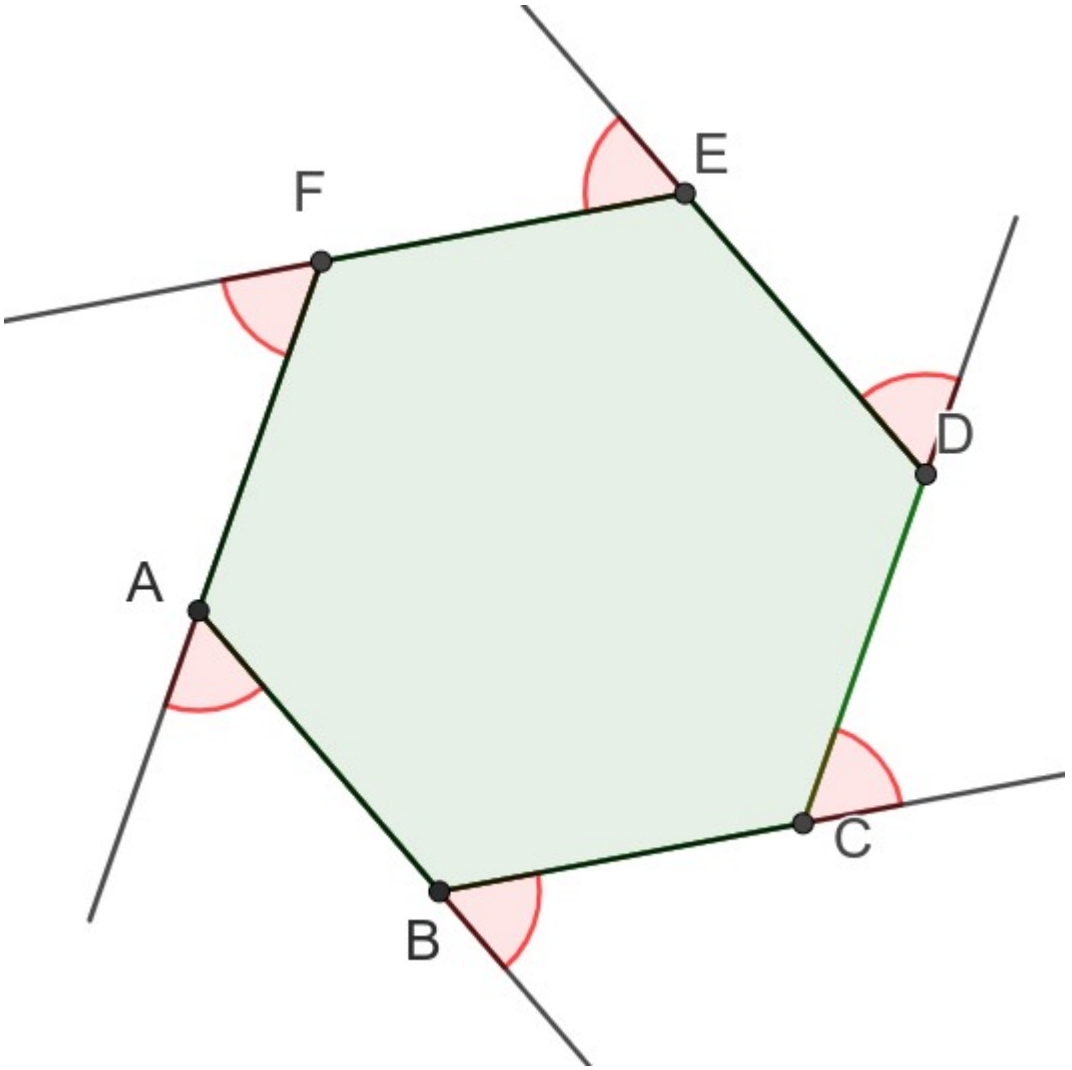


Curiosidade

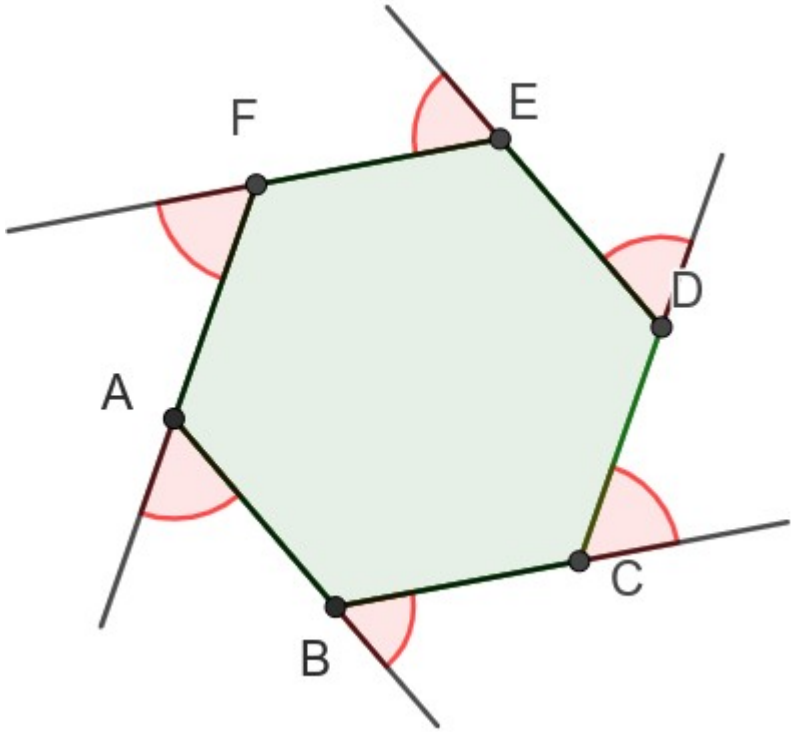


Curiosidade

Para a volta completa...

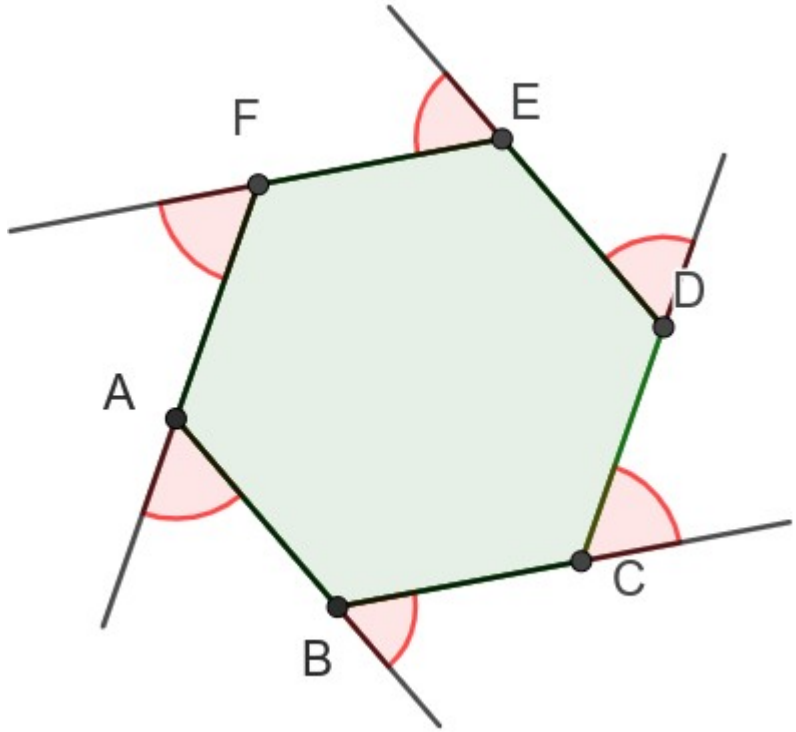


Quantos graus eu tive que girar?



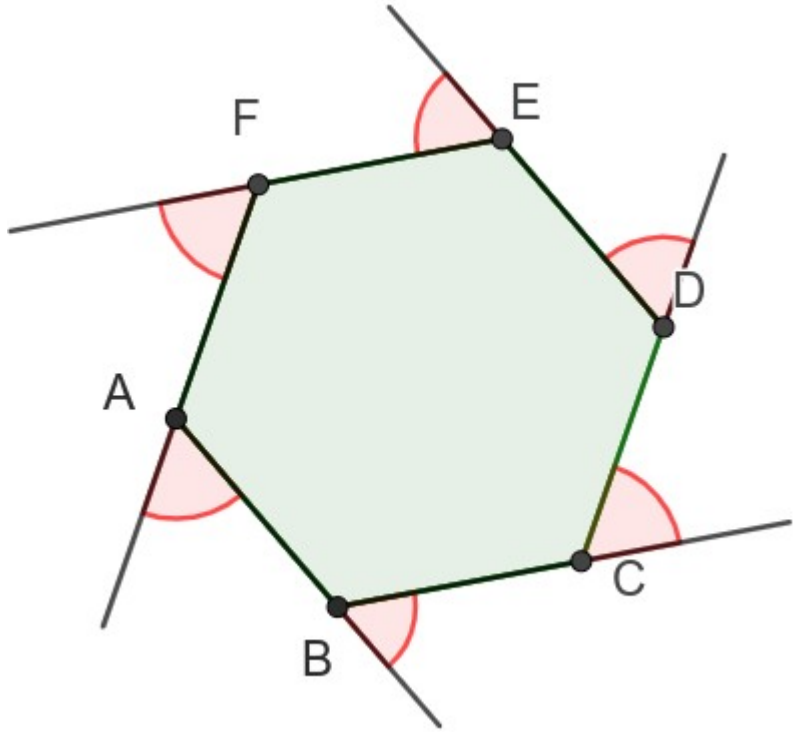
Quantos graus eu tive que girar?

- Ao todo, 360°



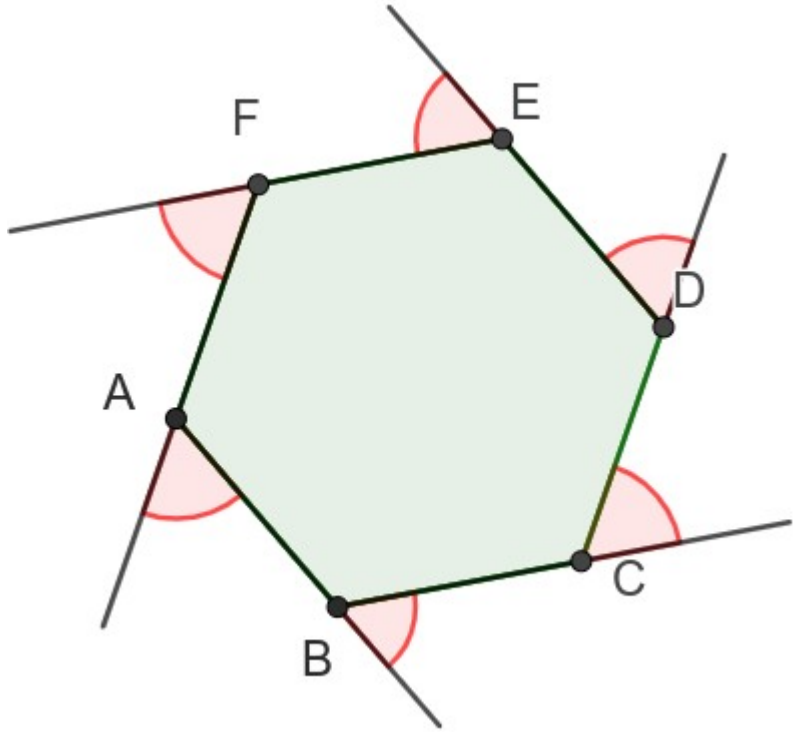
Quantos graus eu tive que girar?

- Ao todo, 360°
- Cada um será...



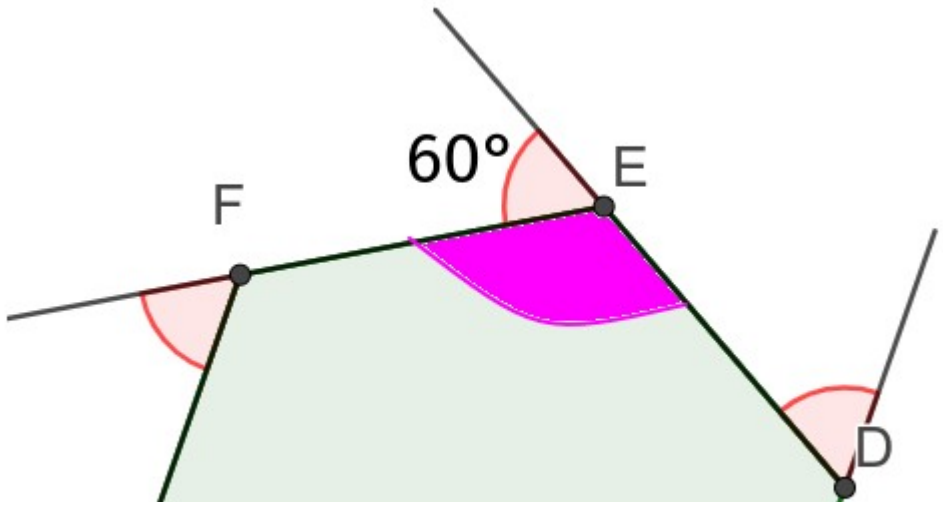
Quantos graus eu tive que girar?

- Ao todo, 360°
- Cada um será... 360°÷6=60°



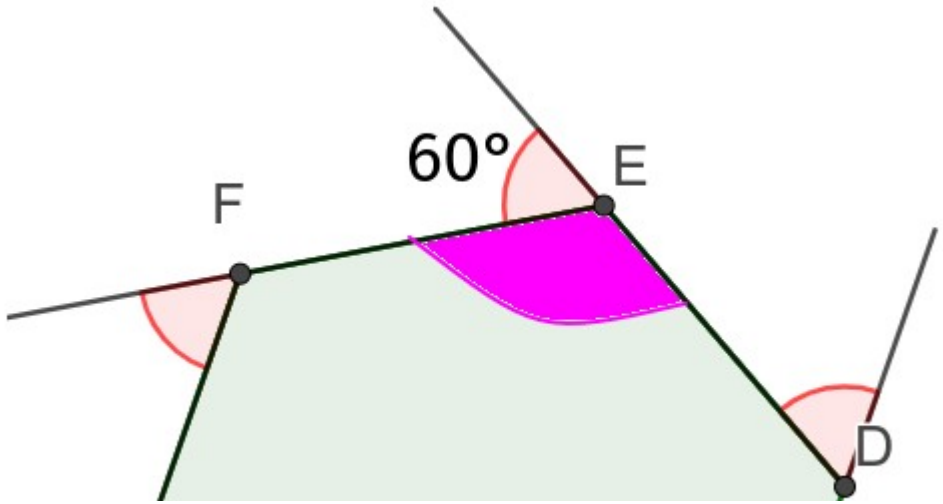
Quantos graus eu tive que girar?

- Ao todo, 360°
- Cada um será... 360°÷6=60°
- Qual será o valor do ângulo rosa?

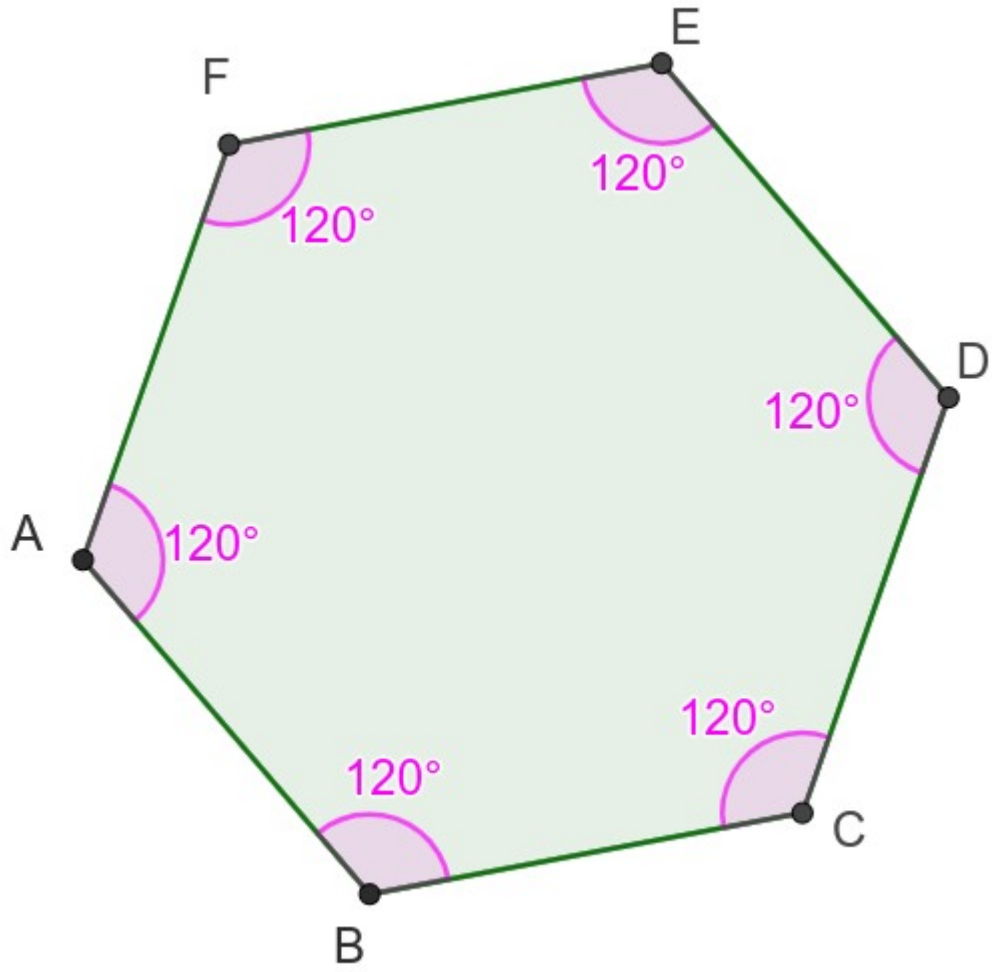


Quantos graus eu tive que girar?

- Ao todo, 360°
- Cada um será... 360°÷6=60°
- Qual será o valor do ângulo rosa?
- 180° – 60° = 120°



Ângulos internos do hexágono regular



Ângulos internos de outros polígonos regulares

https://www.geogebra.org/m/adwcynzs

Desafio

Desafio

Ladrilhamento

recobrimento do plano, sem sobreposição e sem buracos, usando figuras geométricas.

Desafio

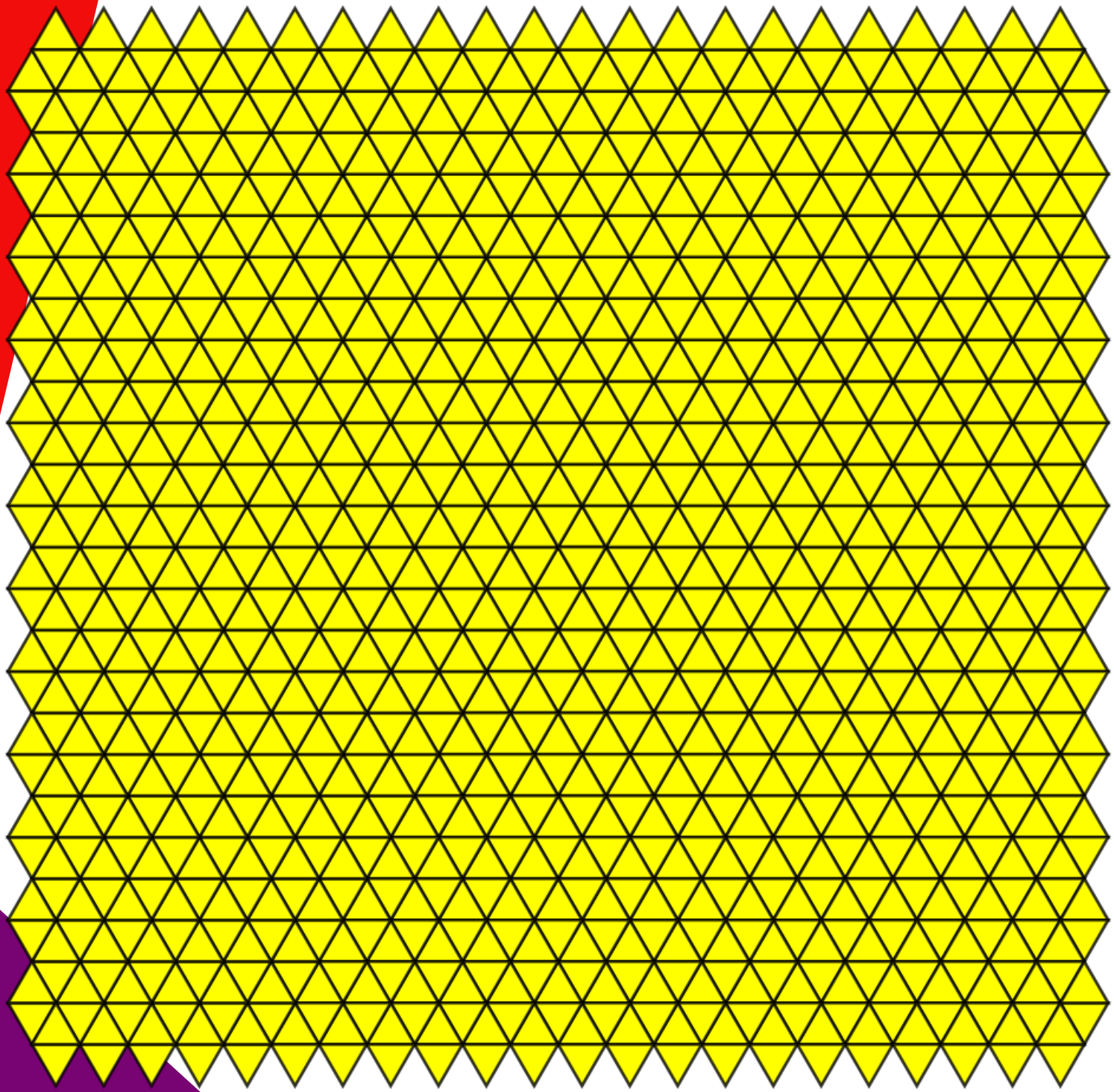
Ladrilhamentos com polígonos regulares

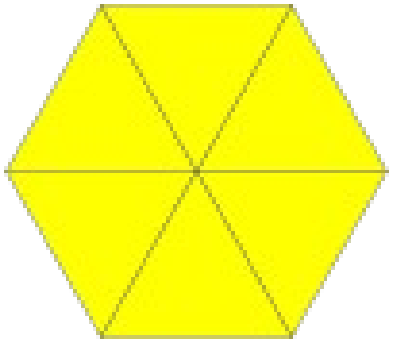
https://www.geogebra.org/m/gh4b5gmv

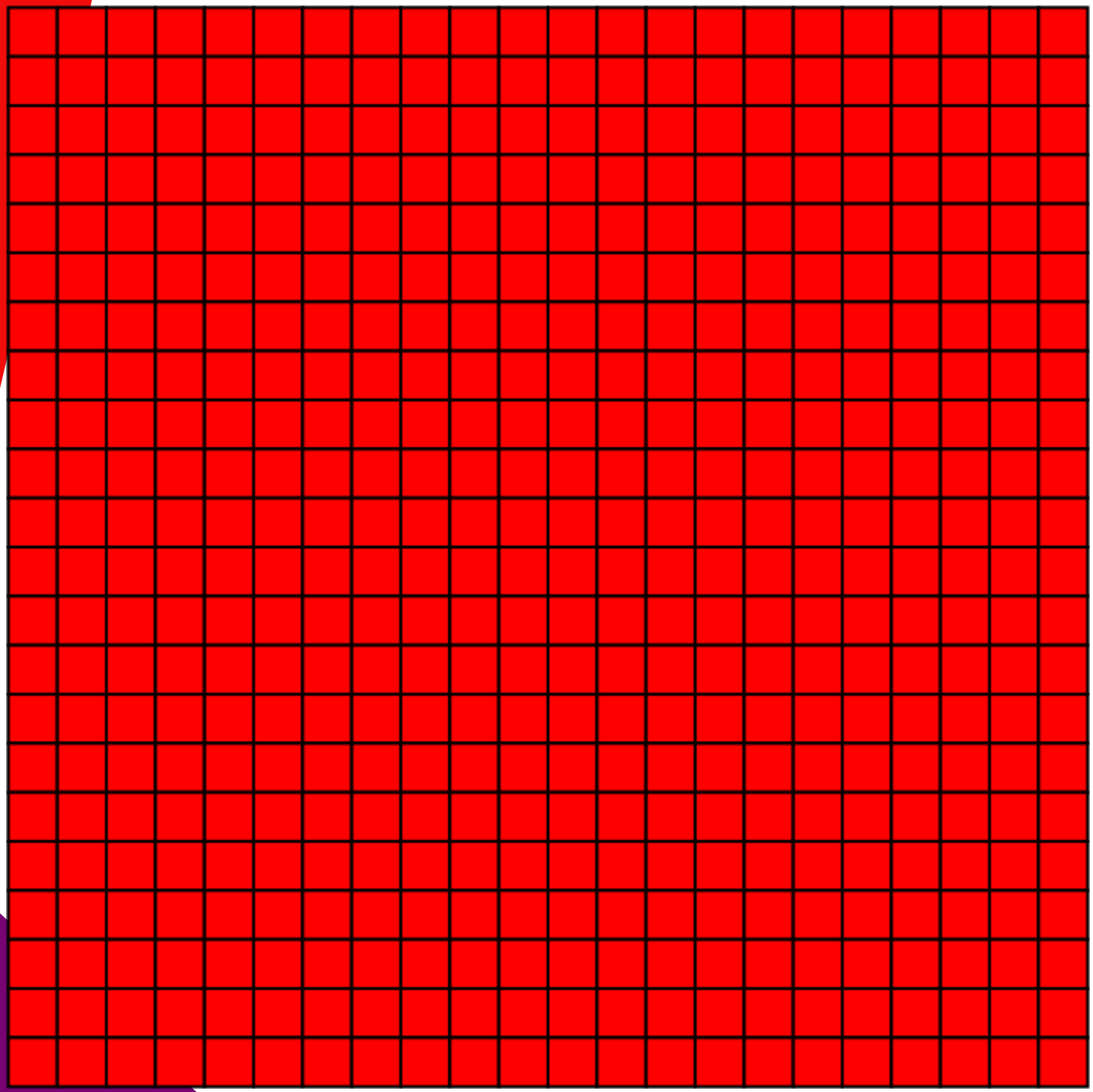
Desafio

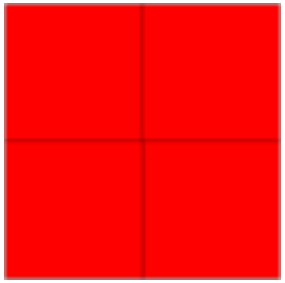
Ladrilhamentos com polígonos regulares

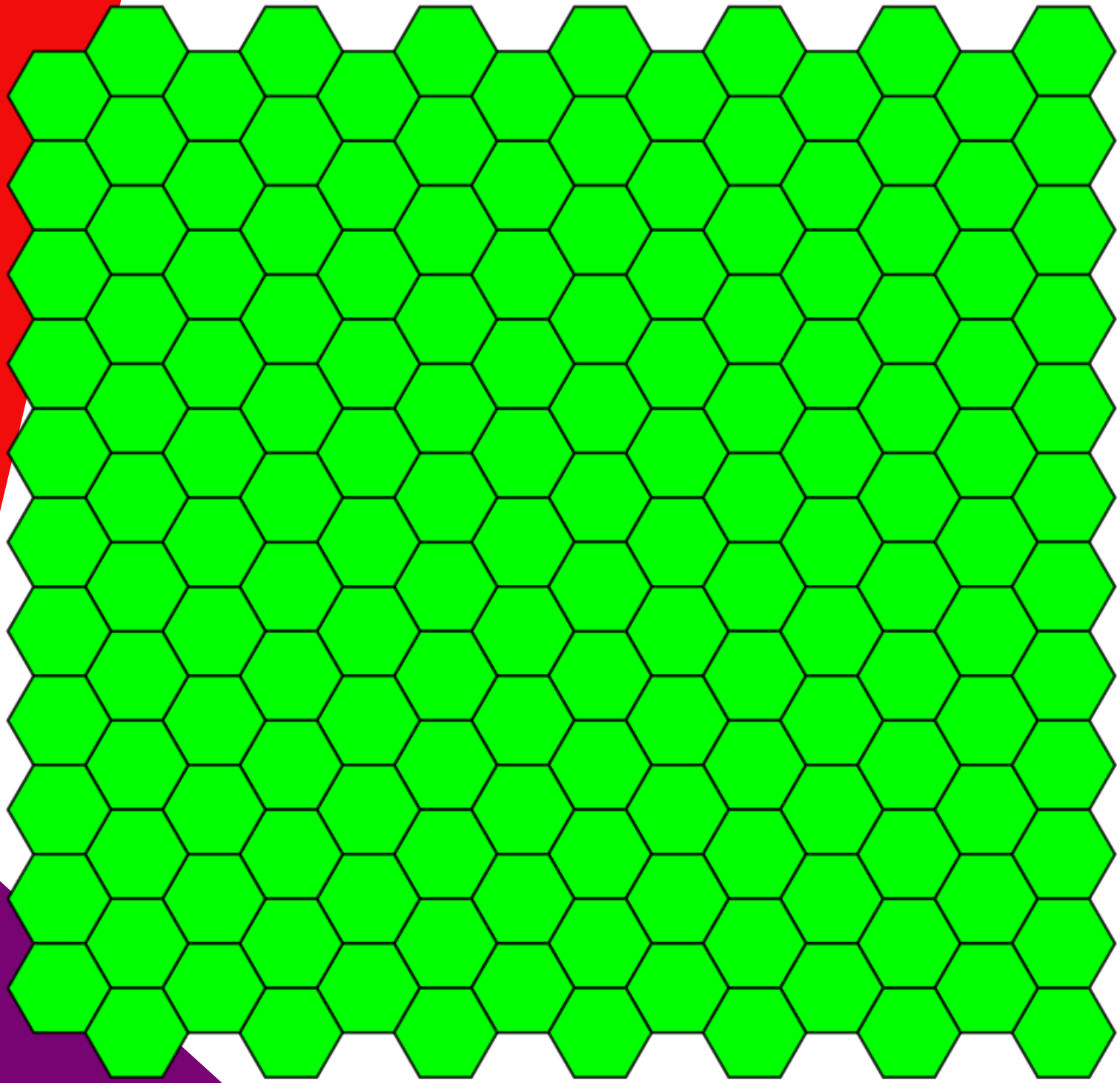
(1) Usando apenas um tipo de polígono

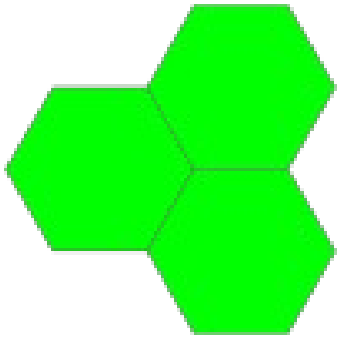








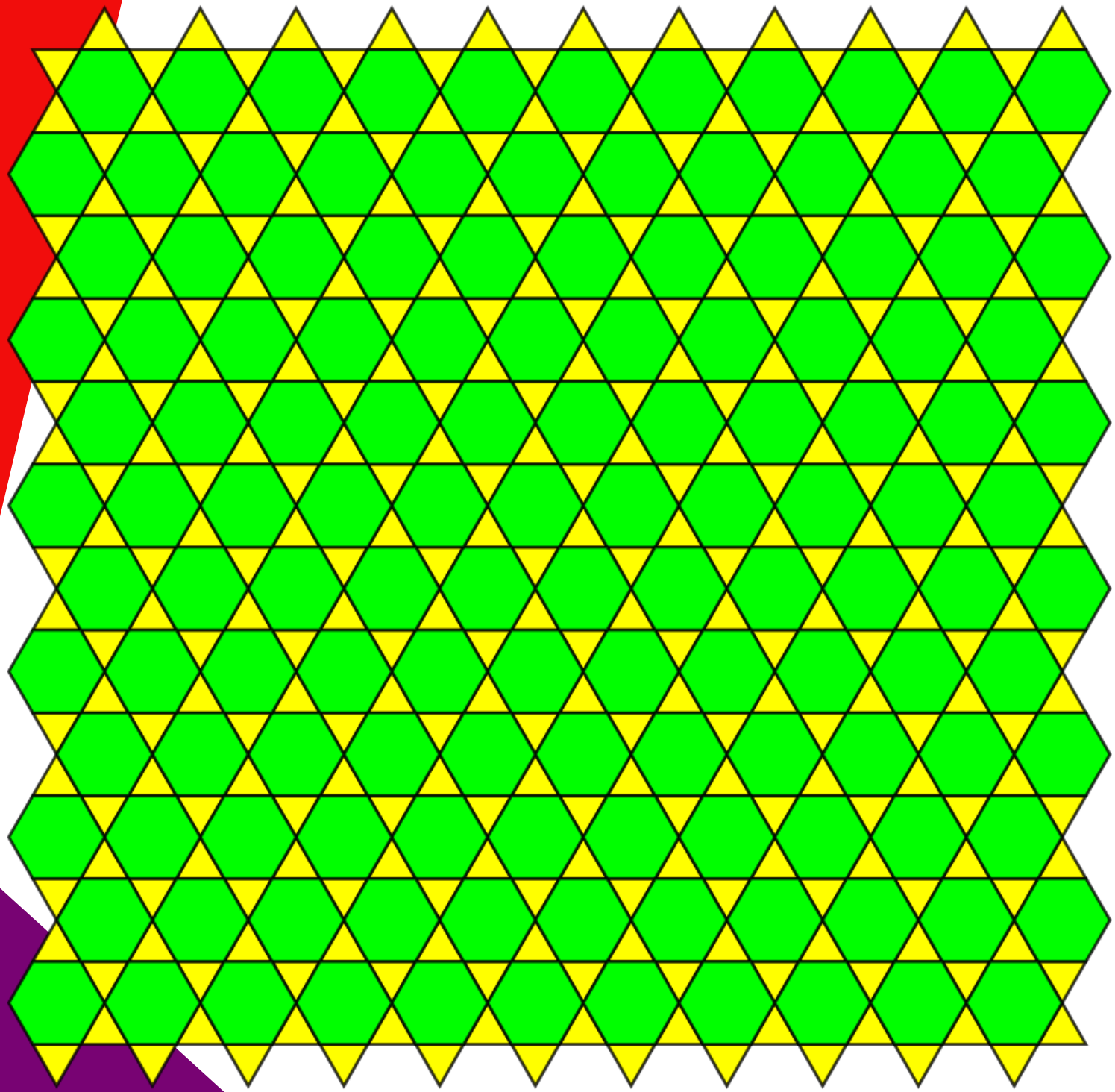


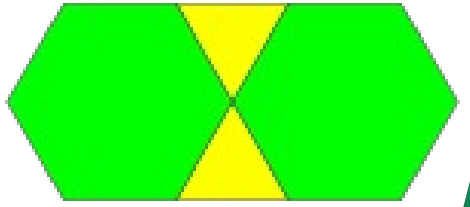


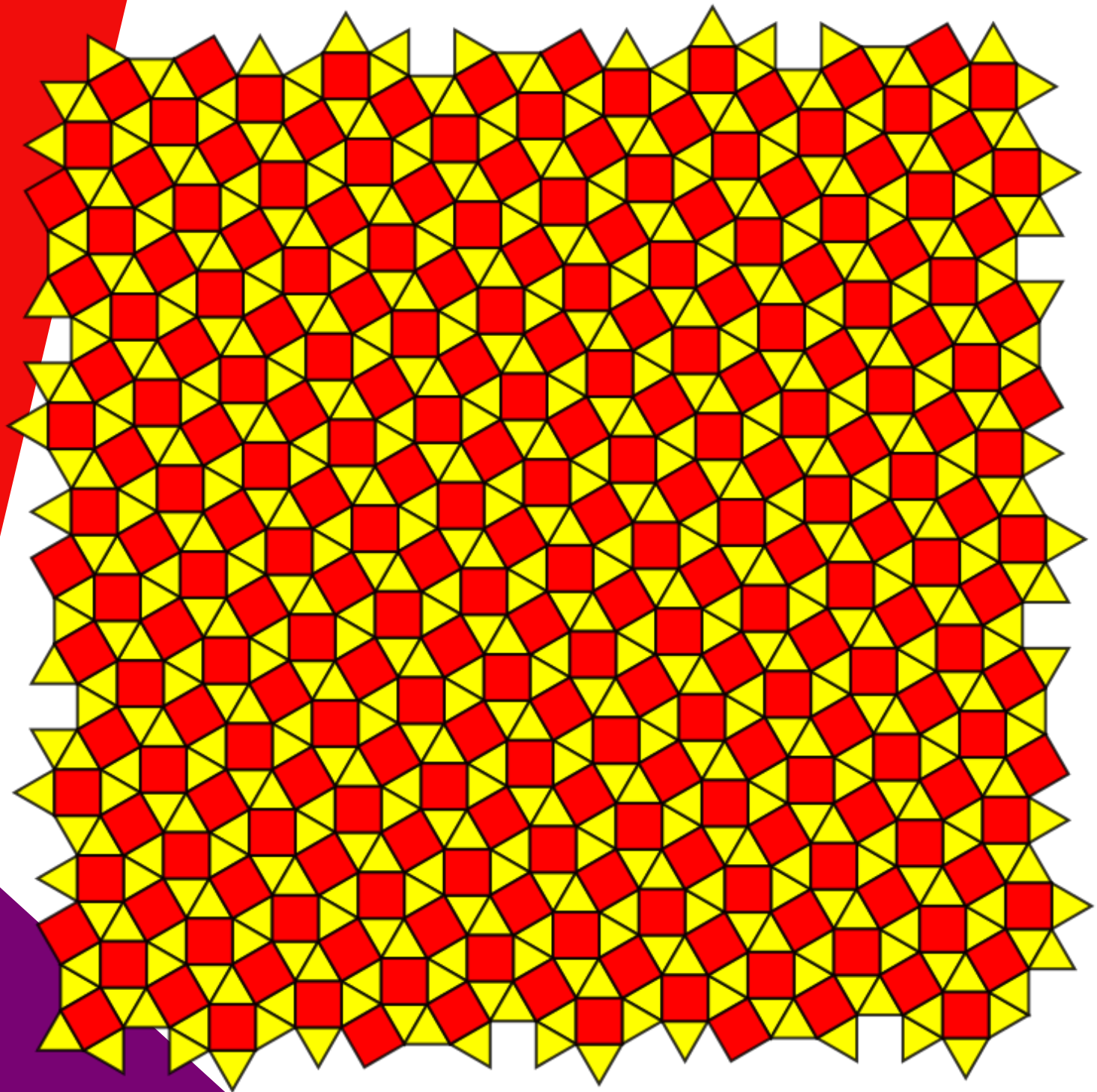
Ladrilhamentos com polígonos regulares

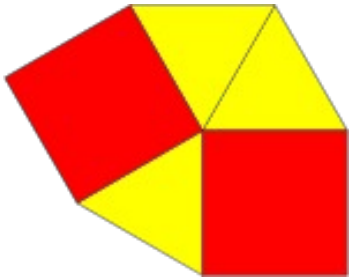
(2) Usando dois tipos de polígonos

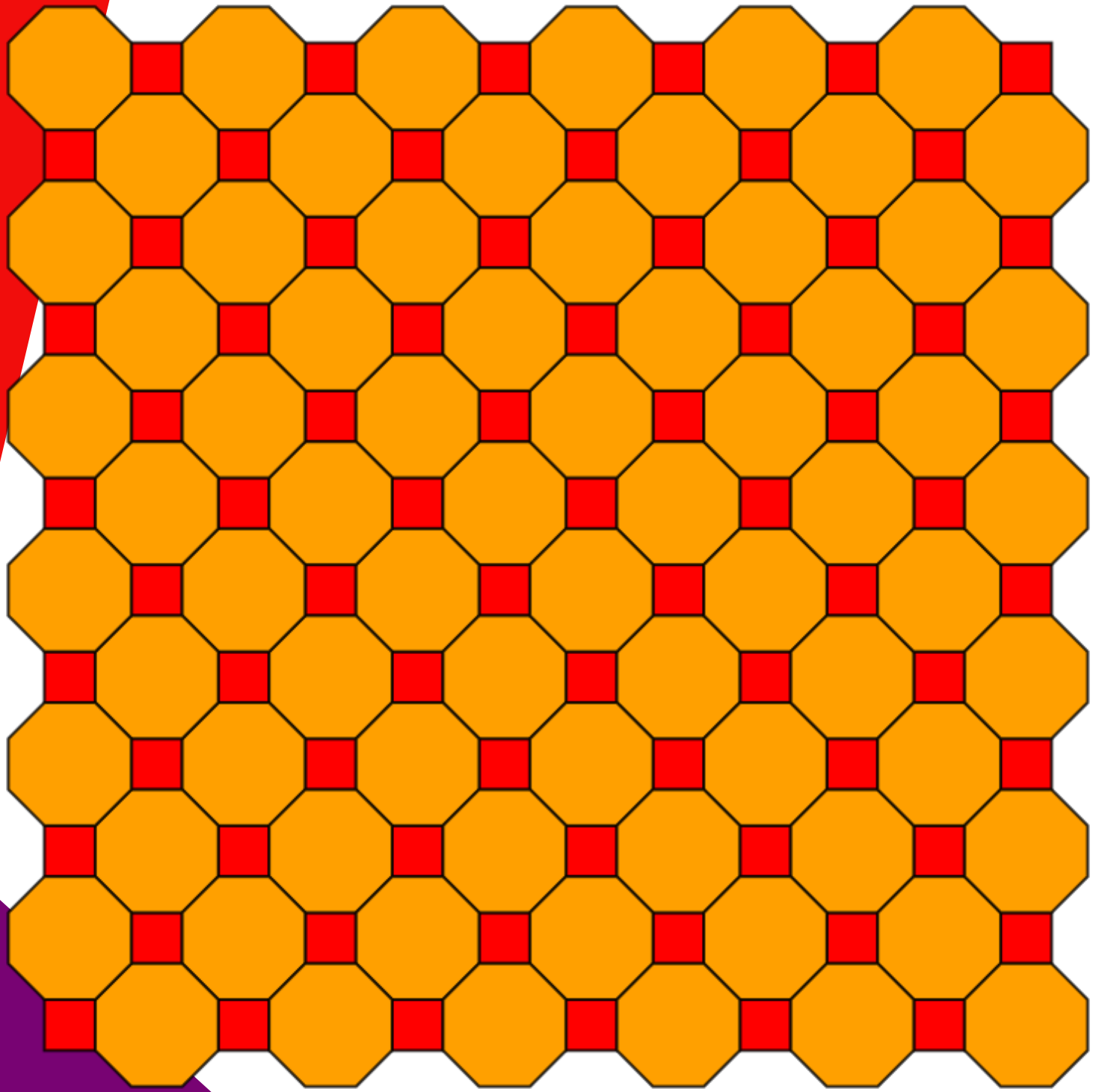
(e mantendo a mesma distribuição de polígonos em cada vértice)

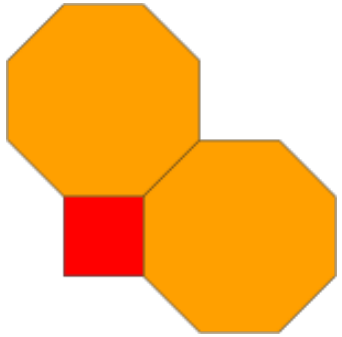


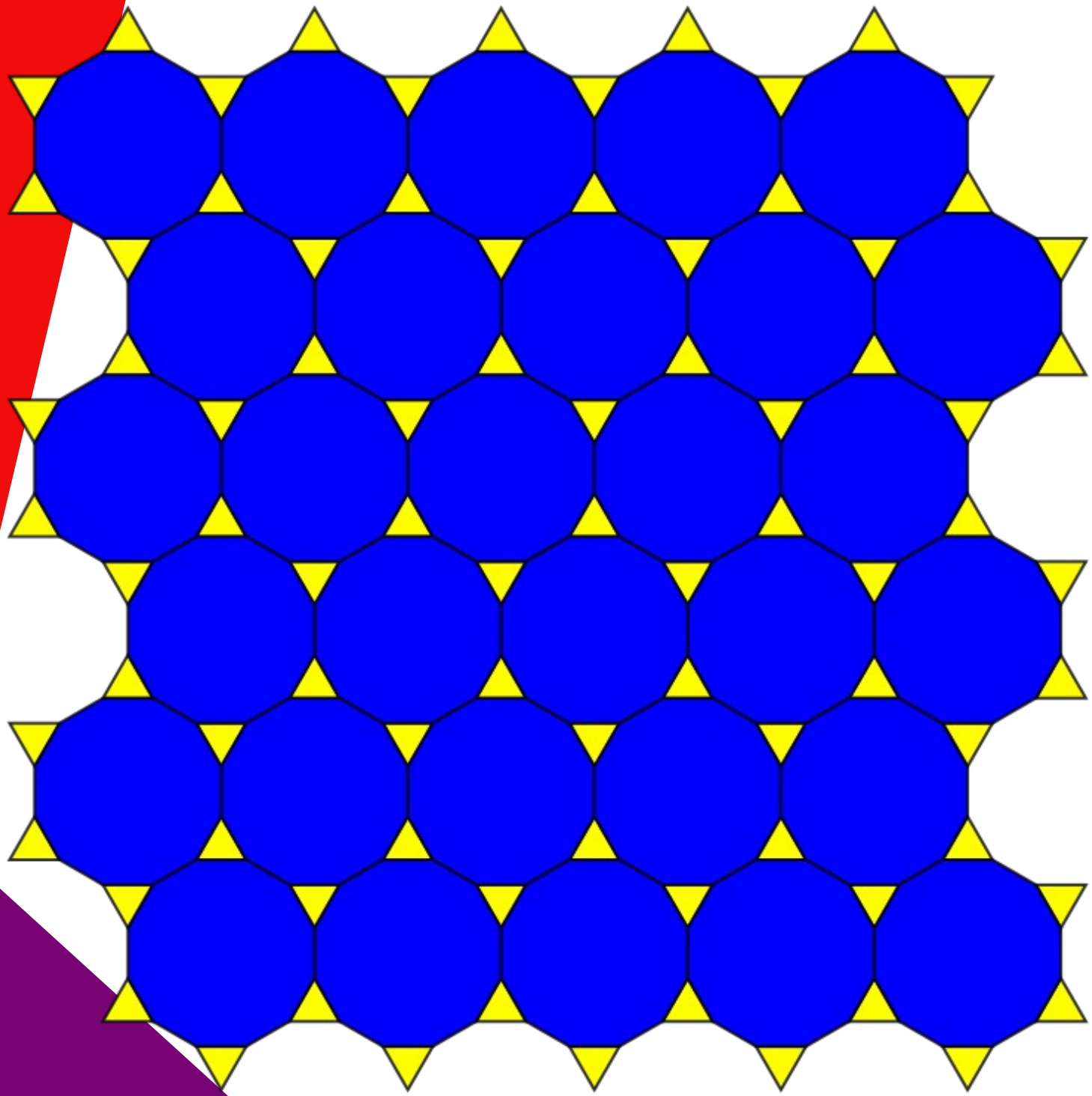


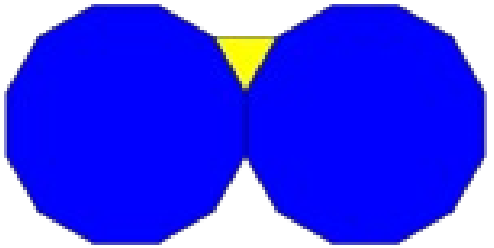












Desafio

Ladrilhamentos com polígonos regulares

(2.1) São apenas essas opções?

(3) É possível fazer ladrilhos usando três tipos de polígonos?

(4) É possível fazer ladrilhos usando quatro tipos de polígonos?

Referências

Wikipédia
https://en.wikipedia.org/wiki/Euclidean_tilings_by_convex_regular_polygons#Archimedean.2C_uniform_or_semiregular_tilings

Site do Nrich
https://nrich.maths.org/6069

Matemateca da USP
https://matemateca.ime.usp.br/acervo/ladrilhamentos.html

Matemática Multimídia – M3: Experimento – Polígonos regulares e ladrilhos
https://m3.ime.unicamp.br/recursos/1026

Material Carmem Mathias no GeoGebra
https://www.geogebra.org/m/uqemfkhp

Bom divertimento!