

AGORA FORUM



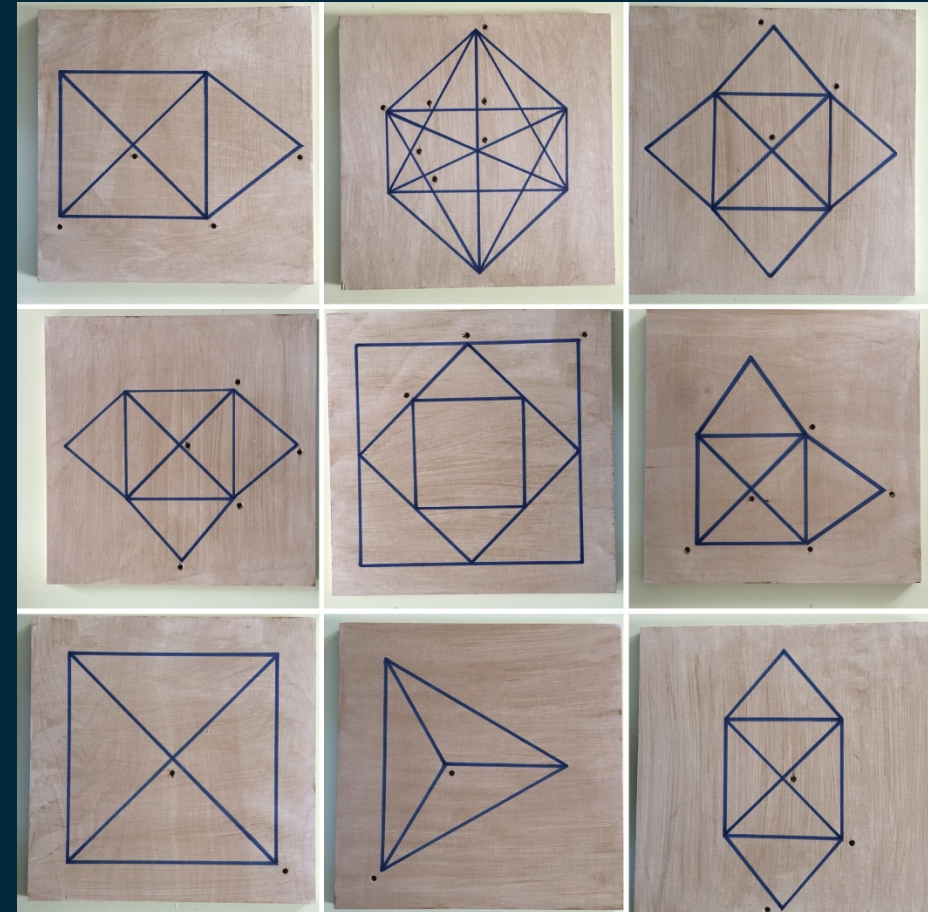
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**Gain attention
from a class**

Graph theory

- In graph theory, an **Eulerian trail** is a trail in a finite graph that visits every edge **exactly once** (allowing for revisiting vertices).
- A **graph** is an ordered pair $G = (V, E)$ comprising:
 - V , a set of *vertices*;
 - $E \subseteq \{\{x, y\} \mid x, y \in V \text{ and } x \neq y\}$, a set of *edges*, which are unordered pairs of vertices (that is, an edge is associated with two distinct vertices).

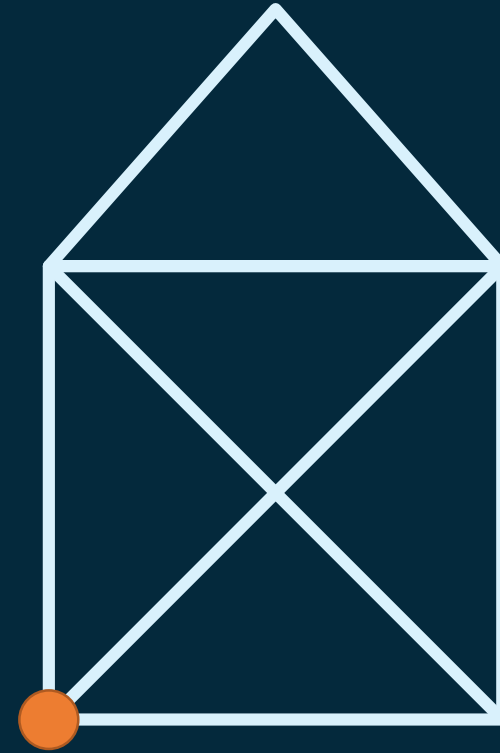
Exercise

- Which of these graphs have an Eulerian trail?
- Find a criterion to decide whether a graph has an Eulerian trail.



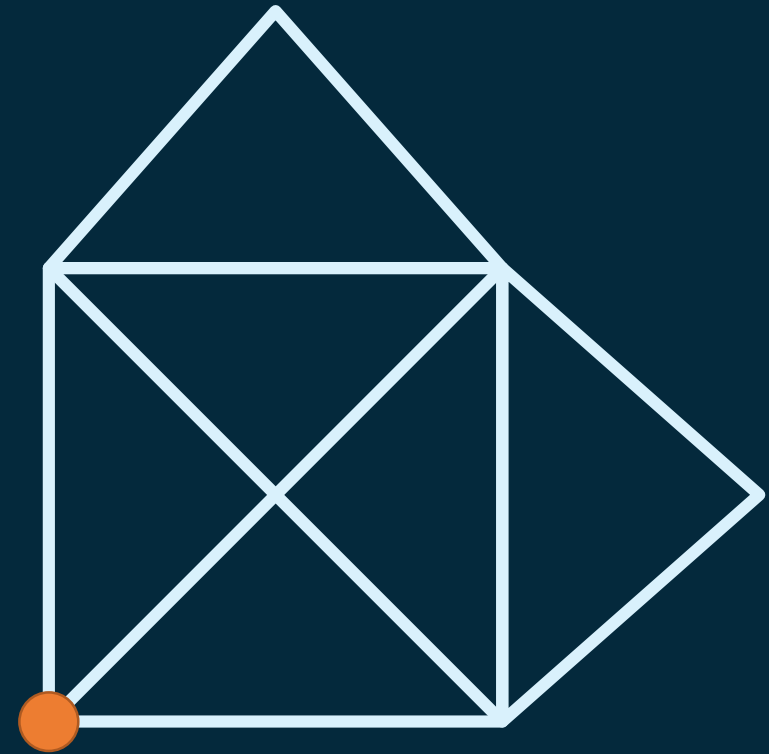
A Challenge

- How many of you can draw the little house (also known as the envelope) without lifting the pen and without going over the same line twice?



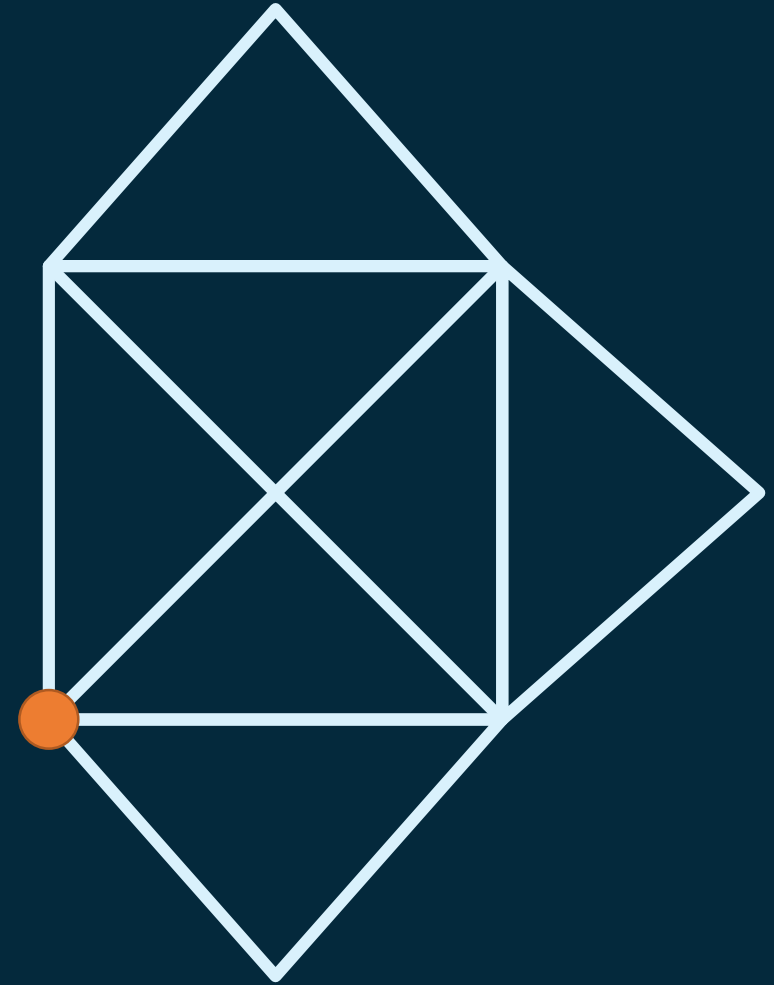
A Challenge

- How many of you can draw this new figure (still without lifting the pen and without going over the same line twice)?



A Challenge

- And this one (still without lifting the pen and without going over the same line twice)?

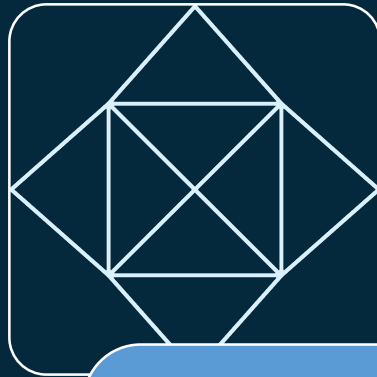
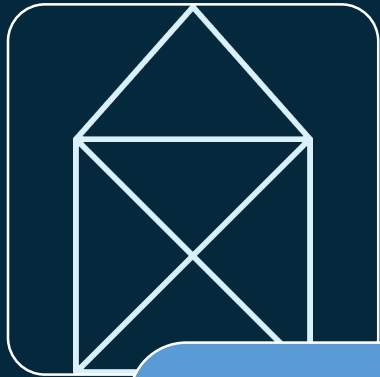


A Challenge

- And this one (still without lifting the pen and without going over the same line twice)?



How to engage your audience



Involve

- Material
- Challenges

Run into a problem

- Problem requires a specific answer
- Could the answer be generalised? How?

Go further

- Generalisation
- Opening on new or related challenges

Particularities of school groups

- Captive audience
- Emulation and challenging between classmates
- Homogeneous level of knowledge
- Easy collaboration between classmates

Exercise

- Which of these graphs have a Eulerian trail?

