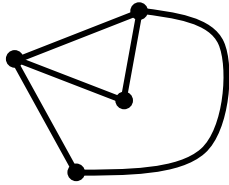


# Eulerian Paths

A **graph diagram** is made up of **vertices** and **edges**. Graph diagrams were studied by Leonhard Euler (1707 – 1783).

The **degree** of a vertex is the number of edges that meet at that vertex.



The black dots are the **vertices** and the black lines are the **edges**.

This graph diagram has vertices of degree 3, 2, 3 and 2.

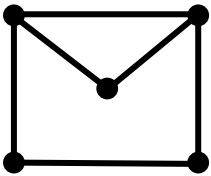
(Note: 'vertices' is the plural of 'vertex')

You can draw the graph diagram above without removing your pencil from the paper. Try it.

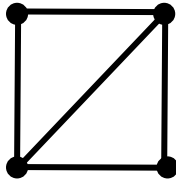
A graph diagram that can be drawn without removing your pencil from the paper is called **Eulerian**.

Can you draw the graph diagrams below without removing your pencil from the paper? Make a note of the degree of each vertex and try to find a rule for which graph diagrams can be drawn without removing your pencil from the paper.

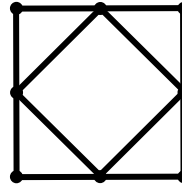
**A**



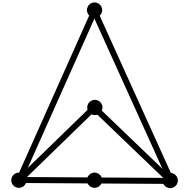
**B**



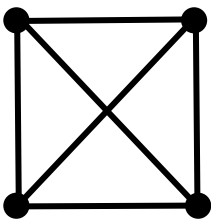
**C**



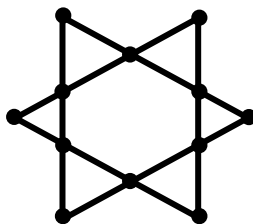
**D**



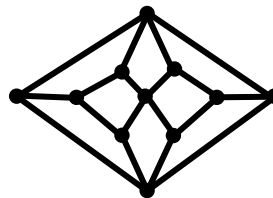
**E**



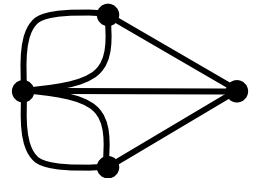
**F**



**G**



**H**



Shape	A	B	C	D	E	F	G	H
No. of vertices with odd degree								

My theory for when a Graph Diagram is Eulerian:

