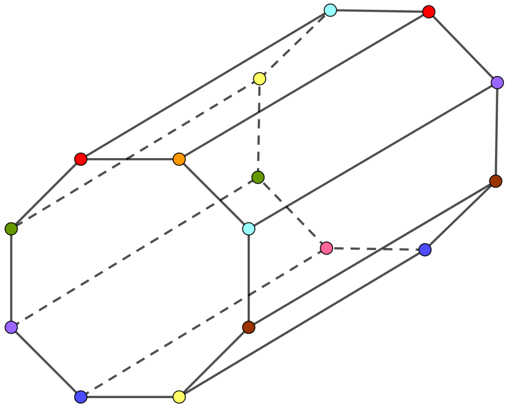
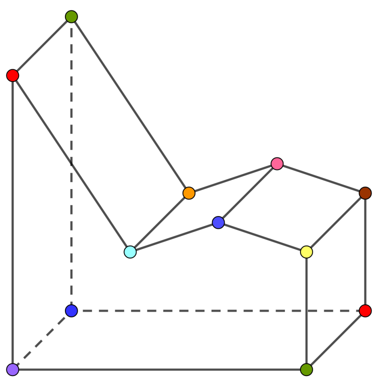


V + **F** - **E**

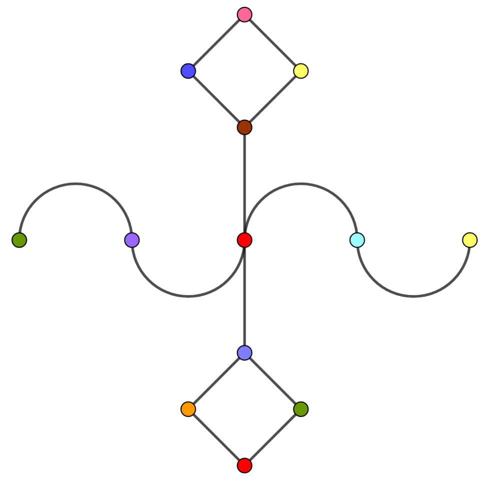
☐ + ☐ - ☐ = ☐



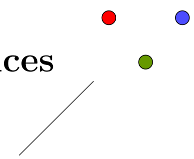
V + **F** - **E**

☐ + ☐ - ☐ = ☐

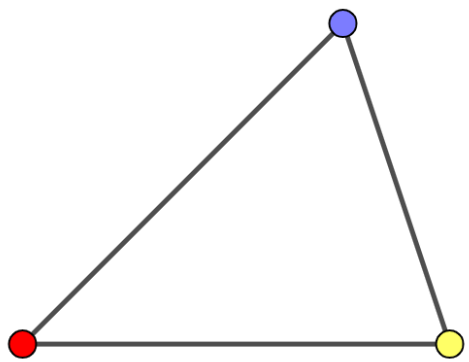
Graph Theory



A **graph** is a collection of **vertices**



connected by **edges**.



This graph has

3 **V**ertices

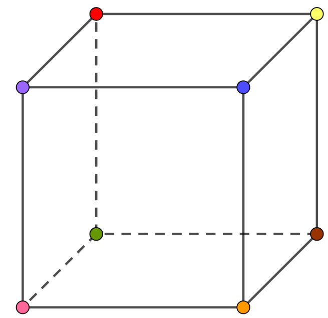
3 **E**dges

and it divides the page into

2 **R**egions

Let's try a 3D graph.

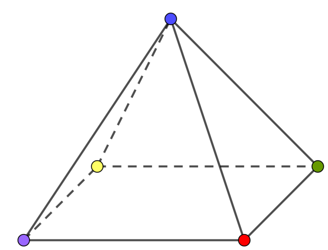
For 3D graphs, instead of regions we use **faces**.



V	+	**F**	-	**E**		
☐	+	☐	-	☐	=	☐

Does the pattern continue?

Try some more 3D graphs:



V	+	**F**	-	**E**		
☐	+	☐	-	☐	=	☐

Design your own graph, and see if the pattern continues!

My graph:

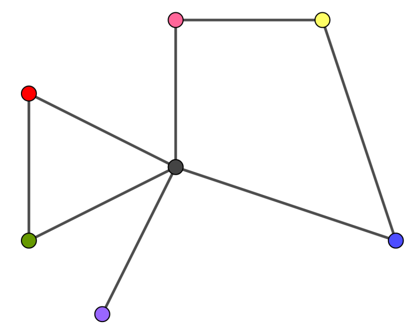
V + **R** - **E**

$\square + \square - \square = \square$

Leonhard Euler is a famous mathematician, who made an important discovery in graph theory.
He discovered something interesting when he calculated:

V	+	**R**	-	**E**
number of vertices		number of regions		number of edges

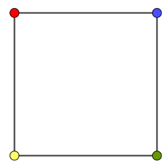
Let's calculate it for this graph:



V + **R** - **E**

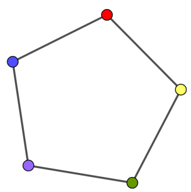
$\square + \square - \square = \square$

Now you try some!



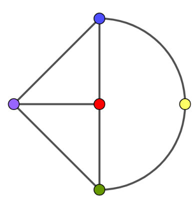
V + **R** - **E**

☐ + ☐ - ☐ = ☐



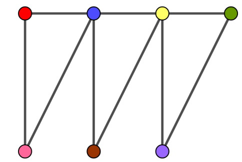
V + **R** - **E**

☐ + ☐ - ☐ = ☐



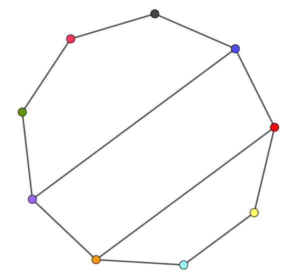
V + **R** - **E**

☐ + ☐ - ☐ = ☐



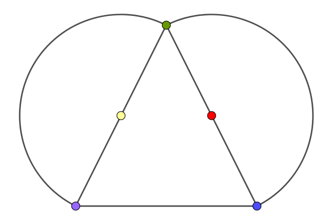
V + **R** - **E**

☐ + ☐ - ☐ = ☐



V + **R** - **E**

☐ + ☐ - ☐ = ☐



V + **R** - **E**

☐ + ☐ - ☐ = ☐