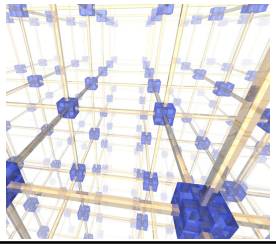
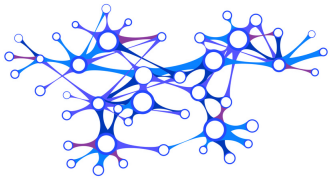


Level 3 Special Project

Graphs



Prerequisite Concepts	Concept 12
Key Concepts	Concept 15

The graph shown in Figure 1 consists of $16 * 4 + 1 = 65$ vertices and $16 * 4 = 64$ edges. It contains 1 centrally located vertex, c, and 64 peripheral vertices $p_0, \ldots p_{63}$. In this graph, c is connected to every peripheral vertex.

Write a Bricklayer program that creates a graph similar to the one shown in Figure 1. Before building this artifact it is recommended that you complete all Vitruvia exercises for Concept 15.

Hint: This graph can be constructed using techniques similar to those discussed in the second code-along associated with this special project (i.e., the special project on graphs). First, create an integer list consisting of the integers 0 through 15. Write 4 appropriate functions that, when applied to integer values, produce evenly spaced 2D coordinates which lie on the sides of a square. The length of the side of this square should be 121. Next, use the map function to create coordinates for each of the sides. Then use 4 map function calls to draw lines from c to each of these coordinates located on the sides of the square. Each side should connect its vertices to the central vertex using a distinct color. And finally, use Bricklayer's *circleXZ* function to produce the circular cutouts.

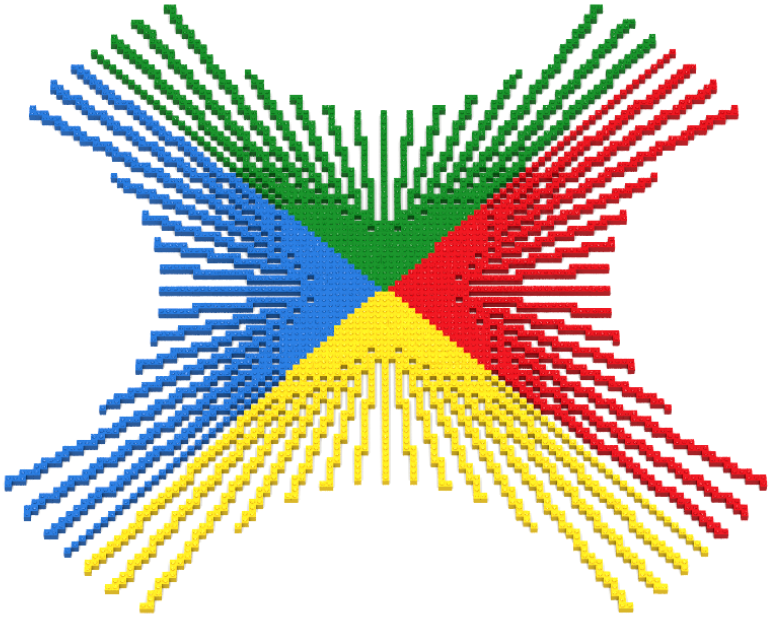


Figure 1: A graph with 65 vertices and 64 edges.