

Sample Coordinates of Vertices of Platonic Solids

Let $\phi = \frac{1}{2}(1 + \sqrt{5}) \approx 1.618034$, the golden ratio.

Tetrahedron: $(\frac{1}{\sqrt{3}}, 0, 0), (0, 0, \frac{2}{\sqrt{6}}), (-\frac{\sqrt{3}}{6}, \pm\frac{1}{2}, 0)$ (4 vertices)

Cube: $(\pm 1, \pm 1, \pm 1)$ (8 vertices)

Octahedron: $(\pm 1, 0, 0), (0, \pm 1, 0), (0, 0, \pm 1)$ (6 vertices)

Icosahedron: $(0, \pm\phi, \pm 1), (\pm 1, 0, \pm\phi), (\pm\phi, \pm 1, 0)$ (12 vertices)

Dodecahedron: $(0, \pm\phi^{-1}, \pm\phi), (\pm\phi, 0, \pm\phi^{-1}), (\pm\phi^{-1}, \pm\phi, 0), (\pm 1, \pm 1, \pm 1)$ (20 vertices)