**4.17 18點可變旋轉體**

var Debug = Core.Debug;

var Mesh3D = Core.Mesh3D;

var Path2D = Core.Path2D;

var Plugin = Core.Plugin;

var Tess = Core.Tess;

var Solid = Core.Solid;

params = [

{ "id": "x18\_pos","displayName": "x18 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 50},

{ "id": "z18\_pos","displayName": "z18 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 95 },

{ "id": "x17\_pos","displayName": "x17 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 30},

{ "id": "z17\_pos","displayName": "z17 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 90 },

{ "id": "x16\_pos","displayName": "x16 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 20},

{ "id": "z16\_pos","displayName": "z16 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 85 },

{ "id": "x15\_pos","displayName": "x15 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 40},

{ "id": "z15\_pos","displayName": "z15 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 80 },

{ "id": "x14\_pos","displayName": "x14 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 20},

{ "id": "z14\_pos","displayName": "z14 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 75 },

{ "id": "x13\_pos","displayName": "x13 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":20},

{ "id": "z13\_pos","displayName": "z13 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 70},

{ "id": "x12\_pos","displayName": "x12 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 30},

{ "id": "z12\_pos","displayName": "z12 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 65 },

{ "id": "x11\_pos","displayName": "x11 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":10},

{ "id": "z11\_pos","displayName": "z11 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":60 },

{ "id": "x10\_pos","displayName": "x10 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":10},

{ "id": "z10\_pos","displayName": "z10 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":55 },

{ "id": "x9\_pos","displayName": "x9 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 30},

{ "id": "z9\_pos","displayName": "z9 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 50 },

{ "id": "x8\_pos","displayName": "x8 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 50},

{ "id": "z8\_pos","displayName": "z8 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 45 },

{ "id": "x7\_pos","displayName": "x7 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 30},

{ "id": "z7\_pos","displayName": "z7 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 40 },

{ "id": "x6\_pos","displayName": "x6 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 20},

{ "id": "z6\_pos","displayName": "z6 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 35 },

{ "id": "x5\_pos","displayName": "x5 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 40},

{ "id": "z5\_pos","displayName": "z5 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 30 },

{ "id": "x4\_pos","displayName": "x4 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 20},

{ "id": "z4\_pos","displayName": "z4 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 25 },

{ "id": "x3\_pos","displayName": "x3 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":20},

{ "id": "z3\_pos","displayName": "z3 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 20},

{ "id": "x2\_pos","displayName": "x2 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 30},

{ "id": "z2\_pos","displayName": "z2 position","type": "float","rangeMin": 0,"rangeMax": 100,"default": 15 },

{ "id": "x1\_pos","displayName": "x1 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":10},

{ "id": "z1\_pos","displayName": "z1 position","type": "float","rangeMin": 0,"rangeMax": 100,"default":10 },

{ "id": "height\_top", "displayName": "Height\_top", "type": "length", "rangeMin": 0, "rangeMax": 100, "default": 100 },

{ "id": "height\_bottom", "displayName": "Height\_bottom", "type": "length", "rangeMin": 0, "rangeMax": 100, "default": 0 },

{ "id": "sides", "displayName": "NumOfSides", "type": "int", "rangeMin": 3, "rangeMax": 360, "default": 6 },

{ "id": "x\_pos","displayName": "x position","type": "float","rangeMin": -100,"rangeMax": 100,"default": 0},

{ "id": "y\_pos","displayName": "y position","type": "float","rangeMin": -100,"rangeMax": 100,"default": 0 },

{ "id": "z\_pos","displayName": "z position","type": "float","rangeMin": -100,"rangeMax": 100,"default": 0}

];

function process(params) {

var x18\_pos = params.x18\_pos;

var z18\_pos = params.z18\_pos;

var x17\_pos = params.x17\_pos;

var z17\_pos = params.z17\_pos;

var x16\_pos = params.x16\_pos;

var z16\_pos = params.z16\_pos;

var x15\_pos = params.x15\_pos;

var z15\_pos = params.z15\_pos;

var x14\_pos = params.x14\_pos;

var z14\_pos = params.z14\_pos;

var x13\_pos = params.x13\_pos;

var z13\_pos = params.z13\_pos;

var x12\_pos = params.x12\_pos;

var z12\_pos = params.z12\_pos;

var x11\_pos = params.x11\_pos;

var z11\_pos = params.z11\_pos;

var x10\_pos = params.x10\_pos;

var z10\_pos = params.z10\_pos;

var x9\_pos = params.x9\_pos;

var z9\_pos = params.z9\_pos;

var x8\_pos = params.x8\_pos;

var z8\_pos = params.z8\_pos;

var x7\_pos = params.x7\_pos;

var z7\_pos = params.z7\_pos;

var x6\_pos = params.x6\_pos;

var z6\_pos = params.z6\_pos;

var x5\_pos = params.x5\_pos;

var z5\_pos = params.z5\_pos;

var x4\_pos = params.x4\_pos;

var z4\_pos = params.z4\_pos;

var x3\_pos = params.x3\_pos;

var z3\_pos = params.z3\_pos;

var x2\_pos = params.x2\_pos;

var z2\_pos = params.z2\_pos;

var x1\_pos = params.x1\_pos;

var z1\_pos = params.z1\_pos;

var x\_pos = params.x\_pos;

var y\_pos = params.y\_pos;

var z\_pos = params.z\_pos;

var tr18 = x18\_pos;

var tr17 = x17\_pos;

var tr16 = x16\_pos;

var tr15 = x15\_pos;

var tr14 = x14\_pos;

var tr13 = x13\_pos;

var tr12 = x12\_pos;

var tr11 = x11\_pos;

var tr10 = x10\_pos;

var tr9 = x9\_pos;

var tr8 = x8\_pos;

var tr7 = x7\_pos;

var tr6 = x6\_pos;

var tr5 = x5\_pos;

var tr4 = x4\_pos;

var tr3 = x3\_pos;

var tr2 = x2\_pos;

var tr1 = x1\_pos;

var height\_top = params.height\_top;

var height\_bottom = params.height\_bottom;

var sides = params.sides;

var angle = 2\*Math.PI / sides;

var mesh = new Mesh3D();

var side1=[];

var side2=[];

var side3=[];

var side4=[];

var side5=[];

var side6=[];

var side7=[];

var side8=[];

var side9=[];

var side10=[];

var side11=[];

var side12=[];

var side13=[];

var side14=[];

var side15=[];

var side16=[];

var side17=[];

var side18=[];

var top = [];

var bottom = [];

var base = [x\_pos,y\_pos+0,z\_pos+height\_bottom];

var peak = [x\_pos+0, y\_pos+0, z\_pos+height\_top];

for (var i = 0; i < sides; i++) //設定各點座標

{

var tx1 = tr1 \* Math.cos(i \* angle);

var ty1 = tr1 \* Math.sin(i \* angle);

var tx2 = tr2 \* Math.cos(i \* angle);

var ty2 = tr2 \* Math.sin(i \* angle);

var tx3 = tr3 \* Math.cos(i \* angle);

var ty3 = tr3 \* Math.sin(i \* angle);

var tx4 = tr4 \* Math.cos(i \* angle);

var ty4 = tr4 \* Math.sin(i \* angle);

var tx5 = tr5 \* Math.cos(i \* angle);

var ty5 = tr5 \* Math.sin(i \* angle);

var tx6 = tr6 \* Math.cos(i \* angle);

var ty6 = tr6 \* Math.sin(i \* angle);

var tx7 = tr7 \* Math.cos(i \* angle);

var ty7 = tr7 \* Math.sin(i \* angle);

var tx8 = tr8 \* Math.cos(i \* angle);

var ty8 = tr8 \* Math.sin(i \* angle);

var tx9 = tr9 \* Math.cos(i \* angle);

var ty9 = tr9 \* Math.sin(i \* angle);

var tx10 = tr10 \* Math.cos(i \* angle);

var ty10 = tr10 \* Math.sin(i \* angle);

var tx11 = tr11 \* Math.cos(i \* angle);

var ty11 = tr11 \* Math.sin(i \* angle);

var tx12 = tr12 \* Math.cos(i \* angle);

var ty12 = tr12 \* Math.sin(i \* angle);

var tx13 = tr13 \* Math.cos(i \* angle);

var ty13 = tr13 \* Math.sin(i \* angle);

var tx14 = tr14 \* Math.cos(i \* angle);

var ty14 = tr14 \* Math.sin(i \* angle);

var tx15 = tr15 \* Math.cos(i \* angle);

var ty15 = tr15 \* Math.sin(i \* angle);

var tx16 = tr16 \* Math.cos(i \* angle);

var ty16 = tr16 \* Math.sin(i \* angle);

var tx17 = tr17 \* Math.cos(i \* angle);

var ty17 = tr17 \* Math.sin(i \* angle);

var tx18 = tr18 \* Math.cos(i \* angle);

var ty18 = tr18 \* Math.sin(i \* angle);

side1.push([x\_pos+tx1, y\_pos+ty1, z\_pos+z1\_pos]);

side2.push([x\_pos+tx2, y\_pos+ty2, z\_pos+z2\_pos]);

side3.push([x\_pos+tx3, y\_pos+ty3, z\_pos+z3\_pos]);

side4.push([x\_pos+tx4, y\_pos+ty4, z\_pos+z4\_pos]);

side5.push([x\_pos+tx5, y\_pos+ty5, z\_pos+z5\_pos]);

side6.push([x\_pos+tx6, y\_pos+ty6, z\_pos+z6\_pos]);

side7.push([x\_pos+tx7, y\_pos+ty7, z\_pos+z7\_pos]);

side8.push([x\_pos+tx8, y\_pos+ty8, z\_pos+z8\_pos]);

side9.push([x\_pos+tx9, y\_pos+ty9, z\_pos+z9\_pos]);

side10.push([x\_pos+tx10, y\_pos+ty10, z\_pos+z10\_pos]);

side11.push([x\_pos+tx11, y\_pos+ty11, z\_pos+z11\_pos]);

side12.push([x\_pos+tx12, y\_pos+ty12, z\_pos+z12\_pos]);

side13.push([x\_pos+tx13, y\_pos+ty13, z\_pos+z13\_pos]);

side14.push([x\_pos+tx14, y\_pos+ty14, z\_pos+z14\_pos]);

side15.push([x\_pos+tx15, y\_pos+ty15, z\_pos+z15\_pos]);

side16.push([x\_pos+tx16, y\_pos+ty16, z\_pos+z16\_pos]);

side17.push([x\_pos+tx17, y\_pos+ty17, z\_pos+z17\_pos]);

side18.push([x\_pos+tx18, y\_pos+ty18, z\_pos+z18\_pos]);

}

for ( i = 0; i < sides-1; i++)   
 //用三角形與四邊形掃邊(不包含最後封口)

{

mesh.triangle (peak, side18[i], side18[i+1]); //頂部三角形

//掃邊

mesh.quad(side1[i], side1[i+1],side2[i+1],side2[i]);

mesh.quad(side2[i], side2[i+1],side3[i+1],side3[i]);

mesh.quad(side3[i], side3[i+1],side4[i+1],side4[i]);

mesh.quad(side4[i], side4[i+1],side5[i+1],side5[i]);

mesh.quad(side5[i], side5[i+1],side6[i+1],side6[i]);

mesh.quad(side6[i], side6[i+1],side7[i+1],side7[i]);

mesh.quad(side7[i], side7[i+1],side8[i+1],side8[i]);

mesh.quad(side8[i], side8[i+1],side9[i+1],side9[i]);

mesh.quad(side9[i], side9[i+1],side10[i+1],side10[i]);

mesh.quad(side10[i], side10[i+1],side11[i+1],side11[i]);

mesh.quad(side11[i], side11[i+1],side12[i+1],side12[i]);

mesh.quad(side12[i], side12[i+1],side13[i+1],side13[i]);

mesh.quad(side13[i], side13[i+1],side14[i+1],side14[i]);

mesh.quad(side14[i], side14[i+1],side15[i+1],side15[i]);

mesh.quad(side15[i], side15[i+1],side16[i+1],side16[i]);

mesh.quad(side16[i], side16[i+1],side17[i+1],side17[i]);

mesh.quad(side17[i], side17[i+1],side18[i+1],side18[i]);

mesh.triangle (base, side1[i+1], side1[i]); //底部三角形

}

mesh.triangle (peak, side18[sides-1], side18[0]); //最後頂部封口

mesh.quad(side1[sides-1], side1[0],side2[0],side2[sides-1]);

//最後四邊形掃邊封口

mesh.quad(side2[sides-1], side2[0],side3[0],side3[sides-1]);

mesh.quad(side3[sides-1], side3[0],side4[0],side4[sides-1]);

mesh.quad(side4[sides-1], side4[0],side5[0],side5[sides-1]);

mesh.quad(side5[sides-1], side5[0],side6[0],side6[sides-1]);

mesh.quad(side6[sides-1], side6[0],side7[0],side7[sides-1]);

mesh.quad(side7[sides-1], side7[0],side8[0],side8[sides-1]);

mesh.quad(side8[sides-1], side8[0],side9[0],side9[sides-1]);

mesh.quad(side9[sides-1], side9[0],side10[0],side10[sides-1]);

mesh.quad(side10[sides-1], side10[0],side11[0],side11[sides-1]);

mesh.quad(side11[sides-1], side11[0],side12[0],side12[sides-1]);

mesh.quad(side12[sides-1], side12[0],side13[0],side13[sides-1]);

mesh.quad(side13[sides-1], side13[0],side14[0],side14[sides-1]);

mesh.quad(side14[sides-1], side14[0],side15[0],side15[sides-1]);

mesh.quad(side15[sides-1], side15[0],side16[0],side16[sides-1]);

mesh.quad(side16[sides-1], side16[0],side17[0],side17[sides-1]);

mesh.quad(side17[sides-1], side17[0],side18[0],side18[sides-1]);

mesh.triangle (base, side1[0], side1[sides-1]);   
 //最後底部封口

return Solid.make(mesh);

}