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/* 3-D Head Phantom */
/* ================ */



#include "TableOfTissues"
#define DTMAT(dens) formel=H2O dichte=dens



Phantom


// original 2D phantom
// -------------------


{ "5" [Ellipsoid:        dx=9.6 dy=12   dz=12.5 ] DTMAT(1.800)  }
{ "6" [Ellipsoid:        dx=9.0 dy=11.4 dz=11.9 ] DTMAT(1.050) }
{ "12"[Ellipsoid: y=-3.6 dx=1.8 dy= 3.6 dz= 3.6 ] DTMAT(1.045) }
{ "7" [Ellipsoid: y= 8.4 dx=1.8 dy= 3.0 dz= 3.0 ] DTMAT(0)}


{ "1" [Sphere: x=-4.7  y= 4.3  z= 0.872 r=2.0] DTMAT(1.060) }
{ "2" [Sphere: x= 4.7  y= 4.3  z= 0.872 r=2.0] DTMAT(1.060) }
{ "3" [Sphere: x=-1.08 y=-9             r=0.4] DTMAT(1.0525) }
{ "4" [Sphere: x= 1.08 y=-9             r=0.4] DTMAT(1.0475) }


{ "14"[Ellipt_Cyl: y=3.6 dx=1.2 dy=4.0 l=0.5*cos(15)
              achse(0,-cos(30),sin(30)) a_y(0,sin(30),cos(30))]
DTMAT(1.800) }


{ "15"[Ellipt_Cyl: y=9.6 dx=0.525561 dy=2. l=0.4
              achse(1,0,0)             a_y(0,-sin(30),cos(30))]
DTMAT(1.800) }
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{ "8" [Ellipsoid_free: x=-1.9 y=5.4 dx=1.206483*cos(15)
      dy=0.420276*cos(15) dz=3.0
      a_z(sin(15),0,cos(15))
      a_x(cos(15)*cos(120),sin(120),-sin(15)*cos(120))] DTMAT(1.800) }

{ "9" [Ellipsoid_free: x=1.9 y=5.4 dx=1.2*cos(15) dy=0.42*cos(15) dz=3.0
      a_z(-sin(15),0,cos(15))
      a_x(cos(15)*cos(60),sin(60),sin(15)*cos(60))] DTMAT(1.800) }

{ "10"[Ellipt_Cyl: x=-4.3 y=6.8 z=-1. dx=1.8 dy=0.24 l=4.0
      achse(0,0,1) a_x(cos(150),sin(150),0) ] DTMAT(1.800) }

{ "11"[Ellipt_Cyl: x=4.3 y=6.8 z=-1. dx=1.8 dy=0.24 l=4.0
      achse(0,0,1) a_x(cos(30),sin(30),0) ] DTMAT(1.800) }

{ "13"[Ellipsoid_free: x=6.393945 y=-6.393945 dx=1.2 dy=0.42 dz=1.2
       a_x(cos(58.1),sin(58.1),0) a_z(0,0,1)] DTMAT(1.055) }

{ "16"[Cone_y: y=-11.15 z=-0.2  r1=0.5 r2=0.2 l=1.5 ] DTMAT(1.800) }
{ "17"[Cone_y: y=-11.15 z= 0.2  r1=0.5 r2=0.2 l=1.5]  DTMAT(1.800) }



// inner ear on the right side
// ---------------------------
{ [Ellipsoid: x=9.1 y=0.0 z=0.0 dx=4.2 dy=1.8 dz=1.8 x<9.1] DTMAT(1.800) }

#define SHA 0.2*sqrt(3.)

// Mid Level

{ [Sphere: z=0 x=8.8 y=0.0 r=.15] DTMAT(0.0)          } // air bubbles
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{ [Sphere: z=0 x=8.4 y=0.0 r=.15] DTMAT(0.0)          } // air bubbles
{ [Sphere: z=0 x=8.0 y=0.0 r=.15] DTMAT(0.0)  } // air bubbles
{ [Sphere: z=0 x=7.6 y=0.0 r=.15] DTMAT(0.0)  } // air bubbles
{ [Sphere: z=0 x=7.2 y=0.0 r=.15] DTMAT(0.0)  } // air bubbles
{ [Sphere: z=0 x=6.8 y=0.0 r=.15] DTMAT(0.0)  } // air bubbles
{ [Sphere: z=0 x=6.4 y=0.0 r=.15] DTMAT(0.0)  } // air bubbles
{ [Sphere: z=0 x=6.0 y=0.0 r=.15] DTMAT(0.0)  } // air bubbles
{ [Sphere: z=0 x=5.6 y=0.0 r=.15] DTMAT(0.0)  } // air bubbles

{ [Sphere: z=0 x=8.6 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=8.2 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=7.8 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=7.4 y=SHA r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=0 x=6.6 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=6.2 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=5.8 y=SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=0 x=8.8 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=8.4 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=0 x=6.4 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=6.0 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=0 x=8.6 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=8.2 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=7.8 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=7.4 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=0 x=7.0 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=6.6 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=0 x=8.6 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=8.2 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=7.8 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=7.4 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=0 x=6.2 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=5.8 y=-SHA r=.15] DTMAT(0.0) } // air bubbles

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{ [Sphere: z=0 x=7.0 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=0 x=6.6 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles



// upper level 1st floor

{ [Sphere: z=SHA x=8.6 y=0 r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=SHA x=8.2 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=SHA x=7.8 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=SHA x=7.4 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=SHA x=7.0 y=0 r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=SHA x=8.8 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=SHA x=8.4 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=SHA x=6.8 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles


// lower level 1st floor

{ [Sphere: z=-SHA x=8.6 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-SHA x=8.2 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-SHA x=7.8 y=0 r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=-SHA x=7.2 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-SHA x=6.8 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles


// upper level 2nd floor

{ [Sphere: z=2*SHA x=8.8 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=8.4 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=8.0 y=0 r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=2*SHA x=8.8 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
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{ [Sphere: z=2*SHA x=7.2 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=6.8 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=6.4 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=2*SHA x=8.6 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=8.2 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=7.8 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=7.4 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=2*SHA x=7.0 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles


// lower level 2nd floor

{ [Sphere: z=-2*SHA x=8.8 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.4 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.0 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.6 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.2 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.8 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.4 y=0 r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.0 y=0 r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-2*SHA x=8.6 y=SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.2 y=SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.8 y=SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.4 y=SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.0 y=SHA  r=.15] DTMAT(0.0) } // air bubbles
```

```
{ [Sphere: z=-2*SHA x=6.6 y=SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.2 y=SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-2*SHA x=8.8 y=2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.4 y=2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.0 y=2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.6 y=2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.2 y=2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.8 y=2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.4 y=2*SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-2*SHA x=8.6 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.2 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.8 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.4 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.0 y=3*SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-2*SHA x=8.6 y=-SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.2 y=-SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.8 y=-SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.4 y=-SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.0 y=-SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.6 y=-SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.2 y=-SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-2*SHA x=8.8 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.4 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.0 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.6 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.2 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=6.8 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles
```

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{ [Sphere: z=-2*SHA x=6.4 y=-2*SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-2*SHA x=8.6 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=8.2 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.8 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.4 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-2*SHA x=7.0 y=-3*SHA  r=.15] DTMAT(0.0) } // air bubbles


// upper level 3rd floor

{ [Sphere: z=3*SHA x=8.6 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.2 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.8 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.4 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.0 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=6.6 y=0  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=3*SHA x=8.8 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.4 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.0 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.6 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.2 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=6.8 y=SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=3*SHA x=8.6 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.2 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.8 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.4 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.0 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=3*SHA x=8.8 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles
```

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{ [Sphere: z=3*SHA x=8.4 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.0 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.6 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=3*SHA x=8.8 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.4 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.0 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.6 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.2 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=6.8 y=-SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=3*SHA x=8.6 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.2 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.8 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.4 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.0 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=3*SHA x=8.8 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.4 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=8.0 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=3*SHA x=7.6 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles


// lower level 3rd floor

{ [Sphere: z=-3*SHA x=8.6 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.2 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.8 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.4 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.0 y=0  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=6.6 y=0  r=.15] DTMAT(0.0) } // air bubbles
```

```
{ [Sphere: z=-3*SHA x=8.8 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.4 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.0 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.6 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.2 y=SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=6.8 y=SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-3*SHA x=8.6 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.2 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.8 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.4 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.0 y=2*SHA  r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-3*SHA x=8.8 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.4 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.0 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.6 y=3*SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-3*SHA x=8.8 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.4 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.0 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.6 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.2 y=-SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=6.8 y=-SHA r=.15] DTMAT(0.0) } // air bubbles

{ [Sphere: z=-3*SHA x=8.6 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.2 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.8 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.4 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.0 y=-2*SHA  r=.15] DTMAT(0.0) } // air bubbles
```

```
{ [Sphere: z=-3*SHA x=8.8 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.4 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=8.0 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles
{ [Sphere: z=-3*SHA x=7.6 y=-3*SHA r=.15] DTMAT(0.0) } // air bubbles



// resolution phantom on the left side
// ----------------------------------

#define d0_xy 0.0400
#define d0_z  0.4000

#define d1_xy 0.0357
#define d2_xy 0.0312
#define d3_xy 0.0278
#define d4_xy 0.0250

#define d1_z  0.4000
#define d2_z  0.2000
#define d3_z  0.1000
#define d4_z  0.0500

#define x0 -7.0
#define y0 -1.0
#define z0  0.0

//------------------------------------------------------------------------
----
// Element 11
```

```
{ [Ellipsoid: x=x0 y=y0         z=z0 dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+2*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+4*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+6*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+8*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }



{ [Ellipsoid: x=x0 y=y0 z=z0+2*d1_z dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0 z=z0+4*d1_z dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0 z=z0+6*d1_z dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0 z=z0+8*d1_z dx=d1_xy/2 dy=d1_xy/2 dz=d1_z/2]
DTMAT(1.8) }



//-------------------------------------------------------------------------
----

// Element 12



{ [Ellipsoid: x=x0 y=y0+12*d0_xy         z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+12*d0_xy+2*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+12*d0_xy+4*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+12*d0_xy+6*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+12*d0_xy+8*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }



{ [Ellipsoid: x=x0 y=y0+12*d0_xy z=z0+2*d2_z dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+12*d0_xy z=z0+4*d2_z dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }
```

```
{ [Ellipsoid: x=x0 y=y0+12*d0_xy z=z0+6*d2_z dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+12*d0_xy z=z0+8*d2_z dx=d1_xy/2 dy=d1_xy/2
dz=d2_z/2] DTMAT(1.8) }



//-------------------------------------------------------------------------
----

// Element 13



{ [Ellipsoid: x=x0 y=y0+24*d0_xy         z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+24*d0_xy+2*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+24*d0_xy+4*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+24*d0_xy+6*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+24*d0_xy+8*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }



{ [Ellipsoid: x=x0 y=y0+24*d0_xy z=z0+2*d3_z dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+24*d0_xy z=z0+4*d3_z dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+24*d0_xy z=z0+6*d3_z dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+24*d0_xy z=z0+8*d3_z dx=d1_xy/2 dy=d1_xy/2
dz=d3_z/2] DTMAT(1.8) }



//-------------------------------------------------------------------------
----

// Element 14



{ [Ellipsoid: x=x0 y=y0+36*d0_xy         z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+36*d0_xy+2*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+36*d0_xy+4*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }
```

```
{ [Ellipsoid: x=x0 y=y0+36*d0_xy+6*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+36*d0_xy+8*d1_xy z=z0 dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }



{ [Ellipsoid: x=x0 y=y0+36*d0_xy z=z0+2*d4_z dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+36*d0_xy z=z0+4*d4_z dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+36*d0_xy z=z0+6*d4_z dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0 y=y0+36*d0_xy z=z0+8*d4_z dx=d1_xy/2 dy=d1_xy/2
dz=d4_z/2] DTMAT(1.8) }



//=============================================================================
====

// Element 21



{ [Ellipsoid: x=x0+2*d0_xy y=y0         z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+2*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+4*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+6*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+8*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }



{ [Ellipsoid: x=x0+2*d0_xy y=y0 z=z0+2*d1_z dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0 z=z0+4*d1_z dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0 z=z0+6*d1_z dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0 z=z0+8*d1_z dx=d2_xy/2 dy=d2_xy/2
dz=d1_z/2] DTMAT(1.8) }



//-----------------------------------------------------------------------
----
```

```
// Element 22


{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy         z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy+2*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy+4*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy+6*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy+8*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy z=z0+2*d2_z dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy z=z0+4*d2_z dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy z=z0+6*d2_z dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+12*d0_xy z=z0+8*d2_z dx=d2_xy/2 dy=d2_xy/2
dz=d2_z/2]

   DTMAT(1.8) }



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// Element 23


{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy         z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]
```

```
   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy+2*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy+4*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy+6*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy+8*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy z=z0+2*d3_z dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy z=z0+4*d3_z dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy z=z0+6*d3_z dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+24*d0_xy z=z0+8*d3_z dx=d2_xy/2 dy=d2_xy/2
dz=d3_z/2]

   DTMAT(1.8) }



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// Element 24



{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy         z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy+2*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }
```

```
{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy+4*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy+6*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy+8*d2_xy z=z0 dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy z=z0+2*d4_z dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy z=z0+4*d4_z dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy z=z0+6*d4_z dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+2*d0_xy y=y0+36*d0_xy z=z0+8*d4_z dx=d2_xy/2 dy=d2_xy/2
dz=d4_z/2]

   DTMAT(1.8) }



//=============================================================================
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// Element 31



{ [Ellipsoid: x=x0+4*d0_xy y=y0         z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+2*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+4*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+6*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+8*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }
```

```
{ [Ellipsoid: x=x0+4*d0_xy y=y0 z=z0+2*d1_z dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0 z=z0+4*d1_z dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0 z=z0+6*d1_z dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0 z=z0+8*d1_z dx=d3_xy/2 dy=d3_xy/2
dz=d1_z/2] DTMAT(1.8) }



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// Element 32



{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy         z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy+2*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy+4*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy+6*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy+8*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy z=z0+2*d2_z dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy z=z0+4*d2_z dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy z=z0+6*d2_z dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }
```

```
{ [Ellipsoid: x=x0+4*d0_xy y=y0+12*d0_xy z=z0+8*d2_z dx=d3_xy/2 dy=d3_xy/2
dz=d2_z/2]

   DTMAT(1.8) }



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// Element 33



{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy         z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy+2*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy+4*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy+6*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy+8*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy z=z0+2*d3_z dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy z=z0+4*d3_z dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy z=z0+6*d3_z dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+24*d0_xy z=z0+8*d3_z dx=d3_xy/2 dy=d3_xy/2
dz=d3_z/2]

   DTMAT(1.8) }
```

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// Element 34



{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy         z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy+2*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy+4*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy+6*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy+8*d3_xy z=z0 dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy z=z0+2*d4_z dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy z=z0+4*d4_z dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy z=z0+6*d4_z dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+4*d0_xy y=y0+36*d0_xy z=z0+8*d4_z dx=d3_xy/2 dy=d3_xy/2
dz=d4_z/2]

   DTMAT(1.8) }



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// Element 41
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{ [Ellipsoid: x=x0+6*d0_xy y=y0         z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+2*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+4*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+6*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+8*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }



{ [Ellipsoid: x=x0+6*d0_xy y=y0 z=z0+2*d1_z dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0 z=z0+4*d1_z dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0 z=z0+6*d1_z dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0 z=z0+8*d1_z dx=d4_xy/2 dy=d4_xy/2
dz=d1_z/2] DTMAT(1.8) }



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// Element 42



{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy         z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy+2*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy+4*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy+6*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy+8*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }
```

```
{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy z=z0+2*d2_z dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy z=z0+4*d2_z dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy z=z0+6*d2_z dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+12*d0_xy z=z0+8*d2_z dx=d4_xy/2 dy=d4_xy/2
dz=d2_z/2]

   DTMAT(1.8) }



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// Element 43



{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy         z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy+2*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy+4*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy+6*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy+8*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy z=z0+2*d3_z dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }
```

```
{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy z=z0+4*d3_z dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy z=z0+6*d3_z dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+24*d0_xy z=z0+8*d3_z dx=d4_xy/2 dy=d4_xy/2
dz=d3_z/2]

   DTMAT(1.8) }



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// Element 44



{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy         z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy+2*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy+4*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy+6*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy+8*d4_xy z=z0 dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]

   DTMAT(1.8) }



{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy z=z0+2*d4_z dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy z=z0+4*d4_z dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]

   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy z=z0+6*d4_z dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]
```

```
   DTMAT(1.8) }

{ [Ellipsoid: x=x0+6*d0_xy y=y0+36*d0_xy z=z0+8*d4_z dx=d4_xy/2 dy=d4_xy/2
dz=d4_z/2]
```

DTMAT(1.8) }