A group of geometric figures have a position and an orientation in a three dimensional space, and a function to draw themself.

The geometric objects are: Point, Line, Plane, Cube, Cuboid.

**Implementation not required**

(a) Draw a likely class hierarchy.

(b) Write the base class with required attributes and methods.

(c) Explain why, by using a base class and hierarchy, the process of including a new

subclass, such as a Ellipsoid, is impressively easy.

Class shapes{

Area();

Volume();

}

Class cube extends shapes{

a;

}

Class cuboid extends shapes{

Length;

Breadth;

Width;

}

Class point {

x,y;

}

Class line{

x[2],y[2];

}

Class plane extends shapes{

x[4],y[4];

}

The base class shapes have common methods for the geometric shapes (cube, cuboid, plane, etc). all the other class are extending the base class so those methods in the base class can be overridden in the derived class if needed. For all the shapes we are going to extend the base class only. If we are going to add another geometric shape to our class hierarchy, we just need to extend the base class for the common methods. So we can reuse the code everywhere in our hierarchy. Adding another class will be very simple. Since we already created some common methods in our base class shapes.

Class ellipsoid extends shapes{

x,y,z;

}