**Problem 2(3marks): Back face culling. Suppose we have a scene with a single, fully opaque, convex object, which is entirely inside the view volume. The convex object is specified by a mesh.**

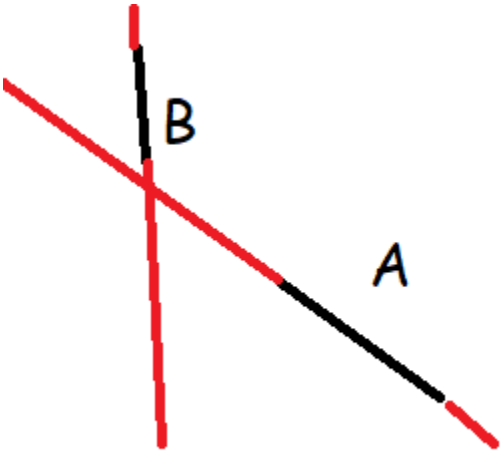
**Under orthogonal projection, will back face culling alone be guaranteed to produce the correct set of visible polygons? Why or why not?**

In orthogonal projection it will create the proper display of polygons, because in orthogonal projection it preserves the parallel lines and this will mean that faces still have the same normal. So if we apply back-face culling we will be guaranteed a correct set, since all the same normals are pointing in the same direction at the camera.

**Under perspective projection, is it true that back face culling alone is guaranteed to produce the correct set of visible polygons? Why or why not?**

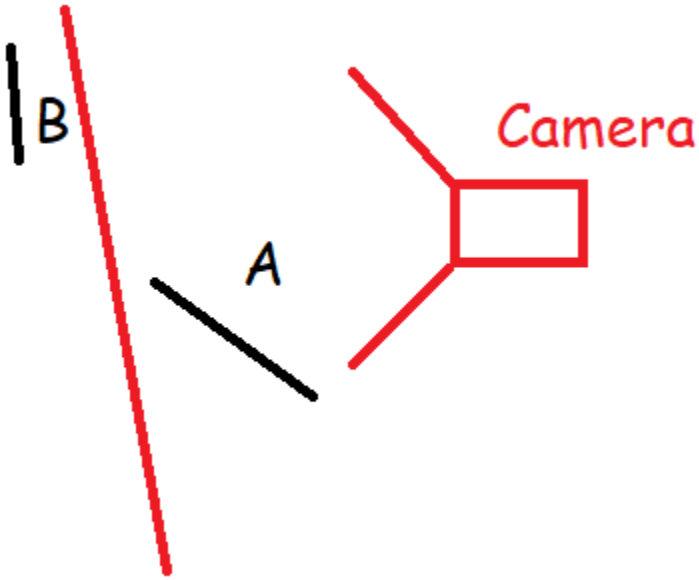
In perspective projection back-face culling should render a correct set of polygons, since for perspective the normal are still pointing in the proper direction. Even if the perspective shifts, the normal will always point the from its surface and that will determine its display.

**Problem 3: (2 Polygon Examples)**




An example for problem three would be: Given two polygons, A and B, you can place a camera in the example to show that BSP and Depth-Sort creates different back to front display orders.

To show this, let a camera be placed in this following picture.




Here we can see that from Back to Front from a Depth Search and BSP tree would generate different back to front sets. Since with BSP B is in front of A but in depth it would be found the other way around.