1 – (B-A)×(C-A)

2- Between the model-view and the projection transformation

3- In orthographic projection, the view direction V is always the same. Therefore, a dot product with the face's normal would be enough to cull the face when $N \cdot V > 0$. For perspective projection, different pixels in the screen use different view directions. Therefore, we would need a point P in the triangle to compute the view direction from the eye E and test whether $N \cdot (P - E) > 0$.

4- B and C

5- **a.** For each edge in the mesh, check whether one adjacent triangle is front-facing and the other is back-facing. Then it is a silhouette. Otherwise it is not.

b. Since the depth values from the first rendering are still in the depth buffer, no pixels should appear. However, depending on the particular depth-test function being used, a very thin, and perhaps intermittent, silhouette might appear.

c. The added pixel on either side of the lines used to render the triangles should make the silhouette edges display one pixel in the outer side. In other words, the silhouette of the model would appear.

6- z=distance(x,P).

7- Pixels will receive two colors, with different depth values. The lower depth value gets rendered. Since the depth (Z) value is the distance from the pixel to the apex of the cone, each pixel will get the color of the cone to which it is closer.

8- It is a straight line.

9- The line has slope > 0, so the X and Y coordinates need to be swapped, then we'll rasterize the swapped coordinates (5,2) and (15,8), and finally swap the coordinates back. The rasterized pixels are: (2,5), (3,6), (4,8), (4,9), (5,10), (5,11), (6,12), (6,13), (7,14), (8,15). (I could be wrong; please check with a few students to see the most popular values). The color decreases 7/11 units (0.063) each step from P1 till P2. So the values are: .80, .73, .66, .59, .52, .45, .38, .31, .24, .17, .10. In order to do the proof, check the distance from each pixel to the closest point in the explicit line equation, and make sure the limits are fine.

10- Clip against the lines in the following order: Top, right, bottom, left. Clipping against the top line doesn't change the situation. The right line clips vertex B and produces vertices AB(700,340) and BC(700,470). The bottom line removes vertex A and introduces AC(475,200) and AAB(583.33,200). Again, clipping against the left line doesn't change anything.