

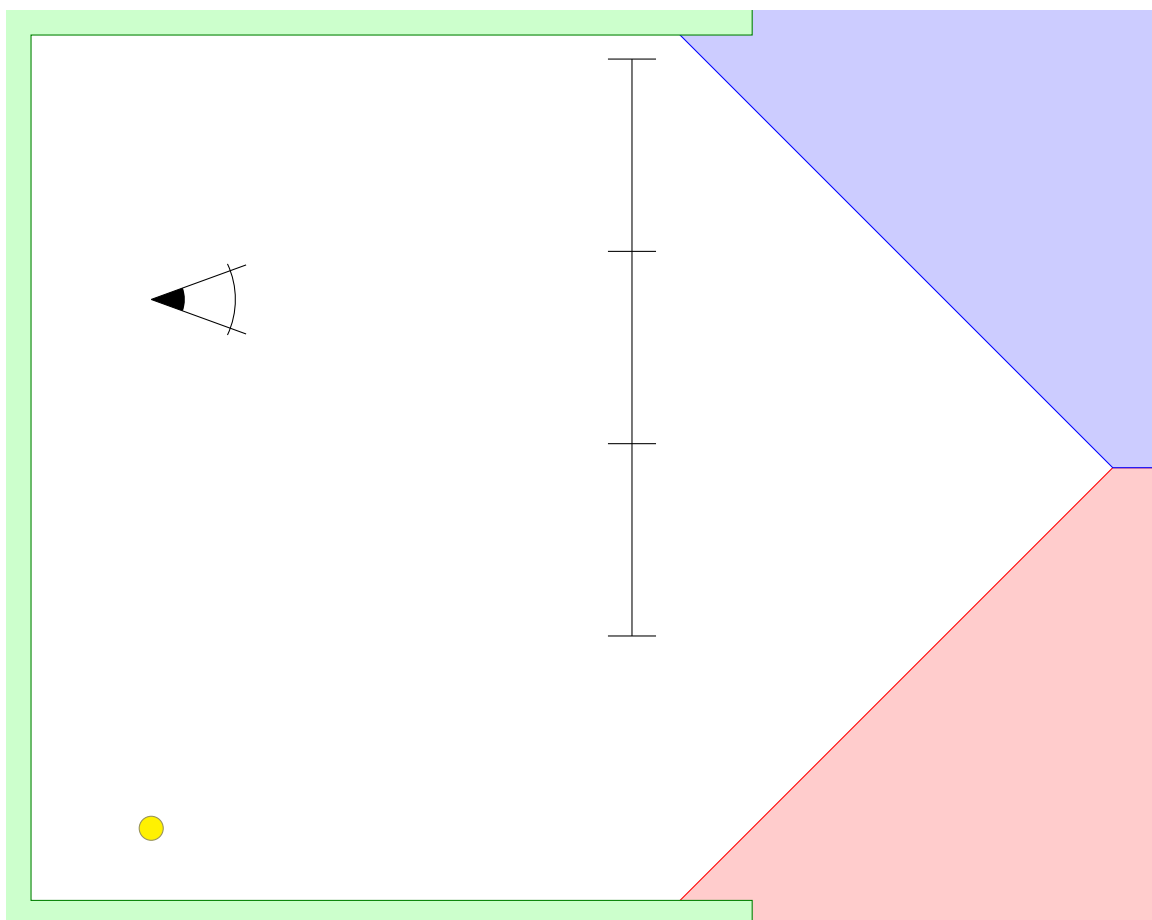
CS 230, Quiz 2

Name: _____ ID: _____

There is one question. No books, notes, or other aids are permitted.

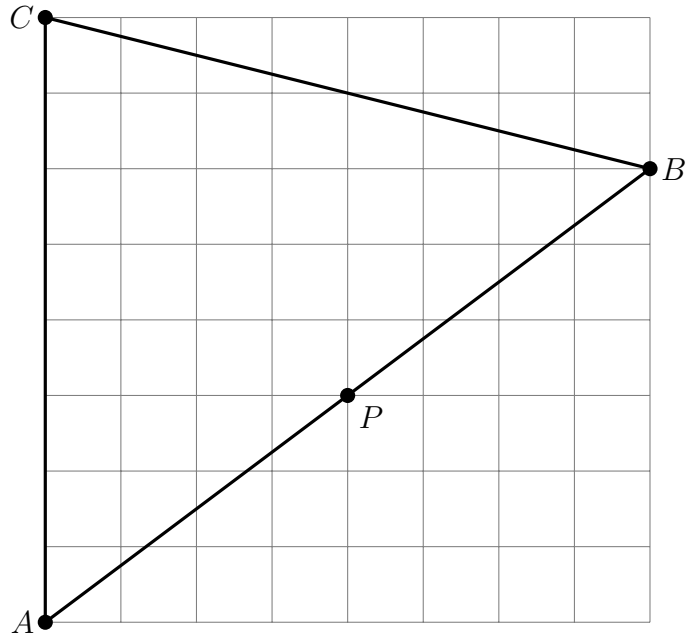
In the raytracing problems below, **green** objects are wood, **red** objects are reflective, and **blue** objects are transparent. The scenes are in 2D with a 1D image. **yellow** circles are point lights; the ray tracer supports shadows. Draw all of the rays that would be cast while raytracing each scene. Use a maximum recursion depth of 3. (Don't worry about precisely what counts as depth 3; I just care that recursion is being performed correctly when necessary and that important rays are not missing. There are no more than 20 rays in the "exact" solution.)

Problem 1 (4 points)



Problem 2 (4 points)

Compute the barycentric weights of the point P .



Problem 3 (4 points)

Let R be the ray with endpoint $(2, -3, 1)$ and direction $(0, 1, 0)$. Let S be the sphere centered at the origin with radius 3. Find all intersection *locations* between the sphere and the ray.