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CS 413 HW2

1. The dot product gives the scalar projection of one vector onto another vector; this also gives us the length of the line between 2 vectors

The cross product gives a vector perpendicular to the two input vectors

2. Detecting collisions with the world, detecting collisions with projectiles, detecting collisions between multiple objects

3. Bounding objects make it easier to detect collisions by reducing the complexity of shapes. For example an octagon could be used to detect a collision on 8 separate sides, using 8 times the calculation, or a radial calculation could be used by bounding the object in a circle shape, so now only 1 calculation is used to detect collisions.

4. Get length of line between to the two centers of the circle, if the length of the line between to 2 circles is less than the radius added together then it is intersecting

If (c1 – c2) . (c1 – c2) <= (r1 + r2) ^ 2

return true

else

return false

5. They both make a tight fit around an object. But AABB does not work as well if the object is rotated around an axis, and OBB does. OBB can be more complex, AABB can be very simple.