

MITOCW | Investigation 1, Part 6

The following content is provided under a Creative Commons license. Your support will help MIT OpenCourseWare continue to offer high quality educational resources for free. To make a donation or to view additional materials from hundreds of MIT courses, visit MIT OpenCourseWare at ocw.mit.edu.

PROFESSOR: --is that for objects that look the same size in the camera, the angle between a line of sight along one edge of the object and a line of sight along the other edge of the object is always the same angle. [INAUDIBLE], could you grab me one of those big kick balls? This is useful, because if we know that things in the camera look the same size they're always the same angle, that allows us, like you guys just did, to predict where we'd need to put this in order for it to look the same size. All we have to do is extend these lines out a little bit until the width between the lines gets to be large enough to accommodate the object.

If you stand on your tiptoes and look if I put the object there, well, obviously the edges of the object are outside of my lines of sight. Whoops. Uh-oh, could you pull that back? Whereas if I go further back to right about here, if I extend this line of sight that way and if I extend that line of sight there, right about here the line of sight is going to be about the same angle for this object.

So this is why astronomers and people who do image science call this thing, this width of the object in the image, they actually call it the angular width. It's the angular width, because it's the angle that the object takes up. If we had a different object that was larger, it would have a different angular width.

So we have this idea of, in our case, we're not going to call it the width of the object in the image anymore, although that's what it is. But we're going to call it the angular width, because we're really not measuring a distance, we're measuring an angle. Because if we measured a distance, we'd actually measure the width of this and we'd come up with this column.