Q1.

Please use the camera model to explain the following observations:

The focal length in a pinhole camera model determines the field of view of the camera. A shorter focal length results in a wider field of view and more of the scene being captured in the image, but objects appear smaller. Conversely, a longer focal length results in a narrower field of view with less of the scene captured, but objects appear larger. This is similar to the concept of "zooming in" or "zooming out" in photography.

Answer:

Q2.

Please use the camera model to explain the vanishing point.

Hint: A vanishing point is a [point](https://en.wikipedia.org/wiki/Point_(geometry)) on the [image plane](https://en.wikipedia.org/wiki/Projection_plane) of a [perspective drawing](https://en.wikipedia.org/wiki/Graphical_perspective) where the two-dimensional [perspective projections](https://en.wikipedia.org/wiki/Perspective_projection) of mutually [parallel](https://en.wikipedia.org/wiki/Parallel_(geometry)) lines in three-dimensional space ([perpendicular](https://en.wikipedia.org/wiki/Perpendicular) to a [picture plane](https://en.wikipedia.org/wiki/Picture_plane)) appear to converge.

A picture containing sky, grass, outdoor, ground

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