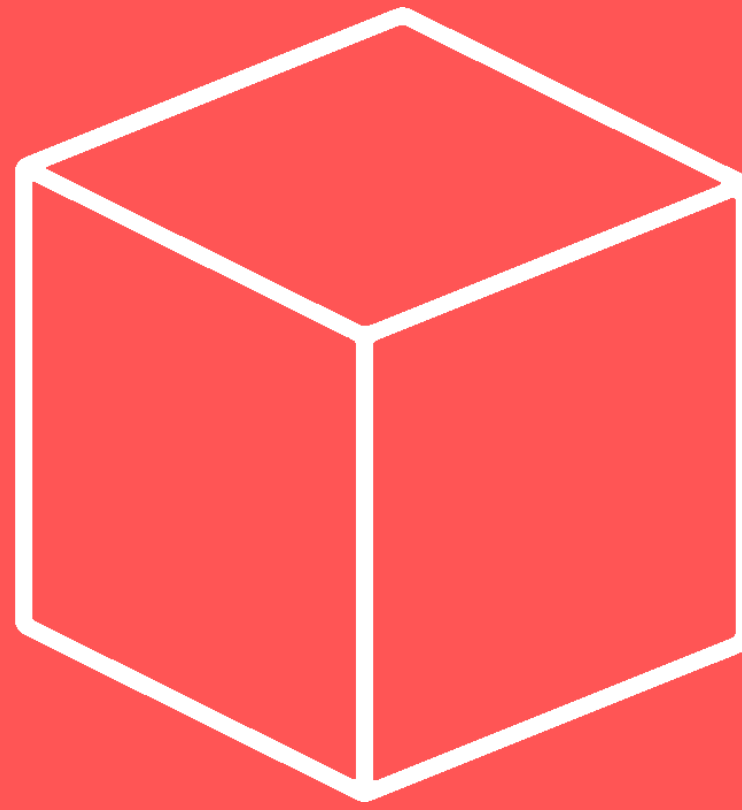
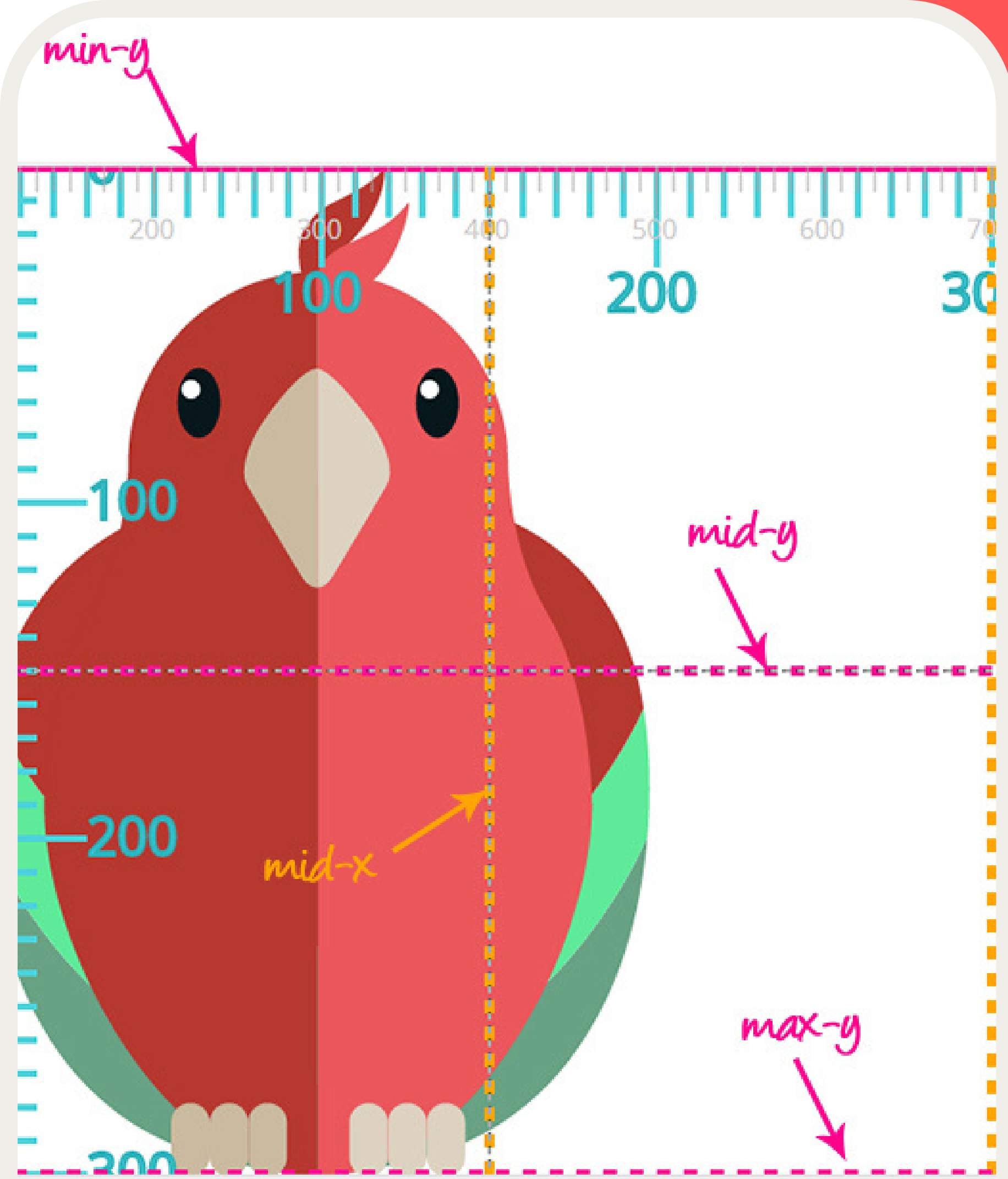


Coordinate Systems: 2D and 3D systems



Group C





What is a Coordinate System?

A coordinate system is a method for identifying the location of a point on the earth.

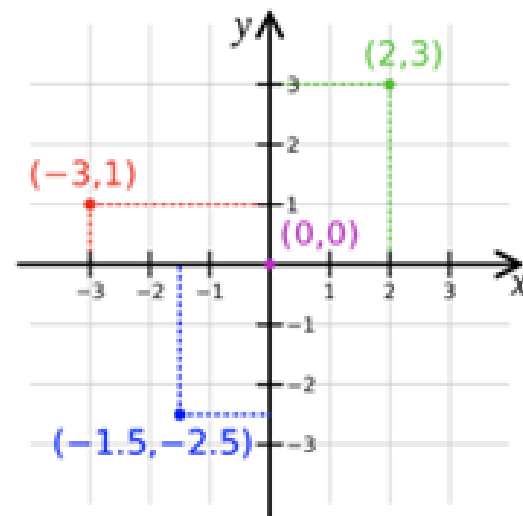


Types of Coordinate Systems



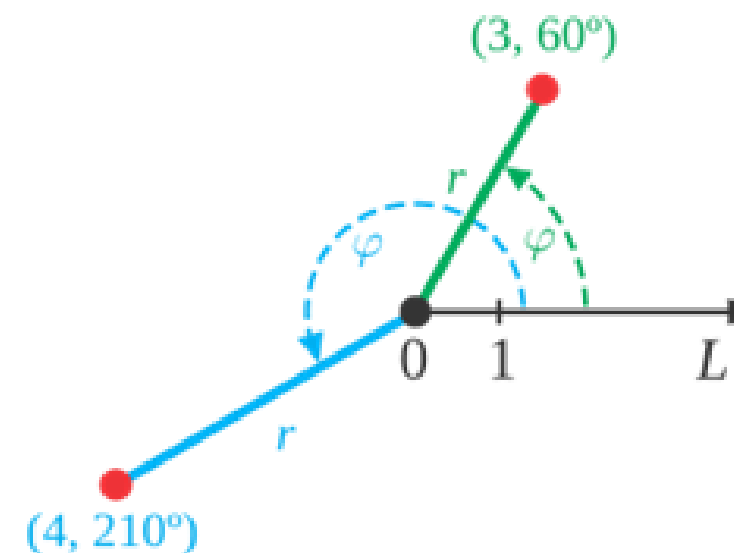
Cartesian

The point coordinates are interpreted by the distance from two perpendicular lines on the plane.



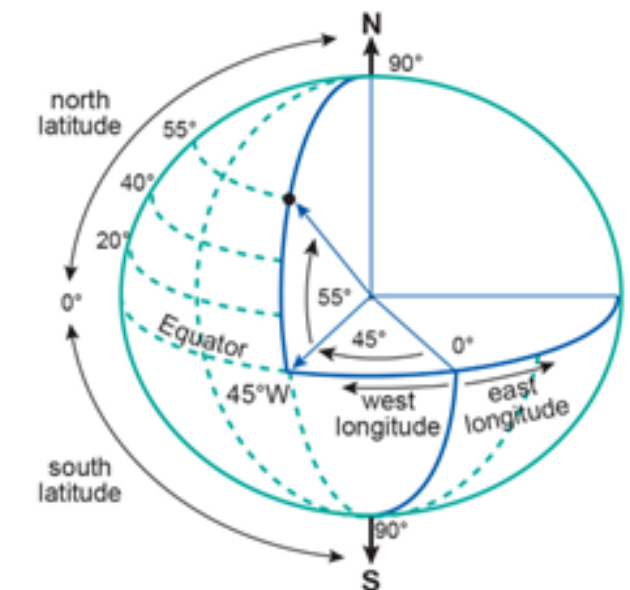
Polar

The point's location is determined by how far it is from the origin



World

It has a 3D look and the location is measured using longitude and latitude



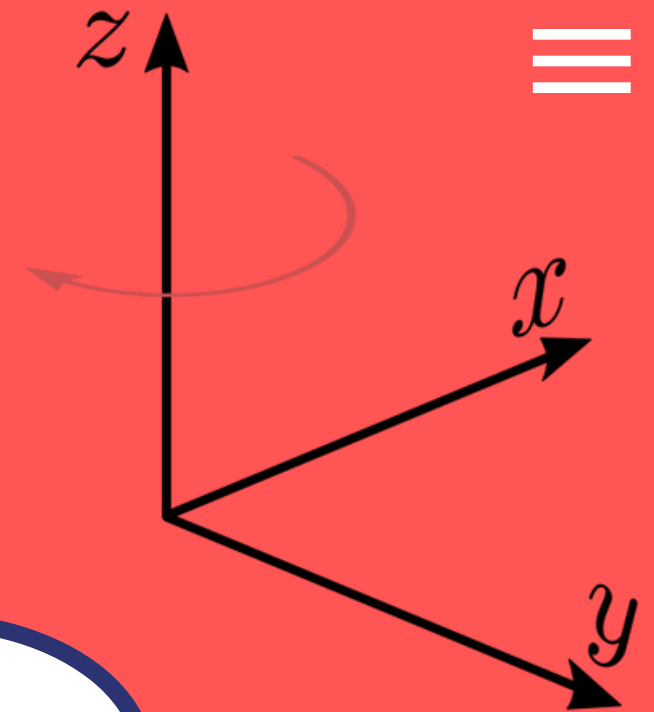
2D and 3D coordinate systems

2D

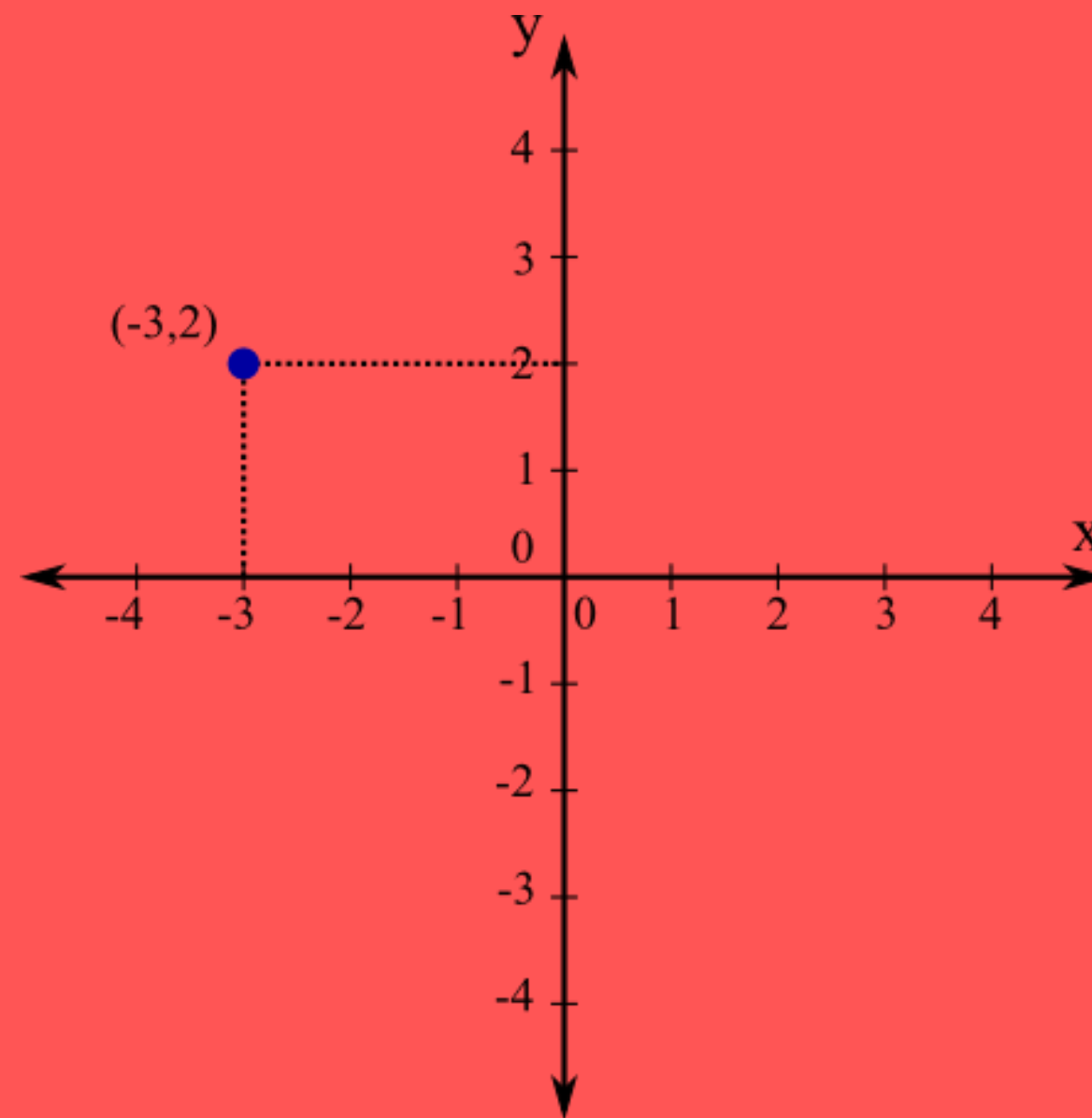
In a two-dimensional coordinate system, the location is expressed using two values. Usually planes perpendicular to each other.

3D

However, a three-dimensional coordinate system is expressed using three values. These three axes are mutually perpendicular to each other.

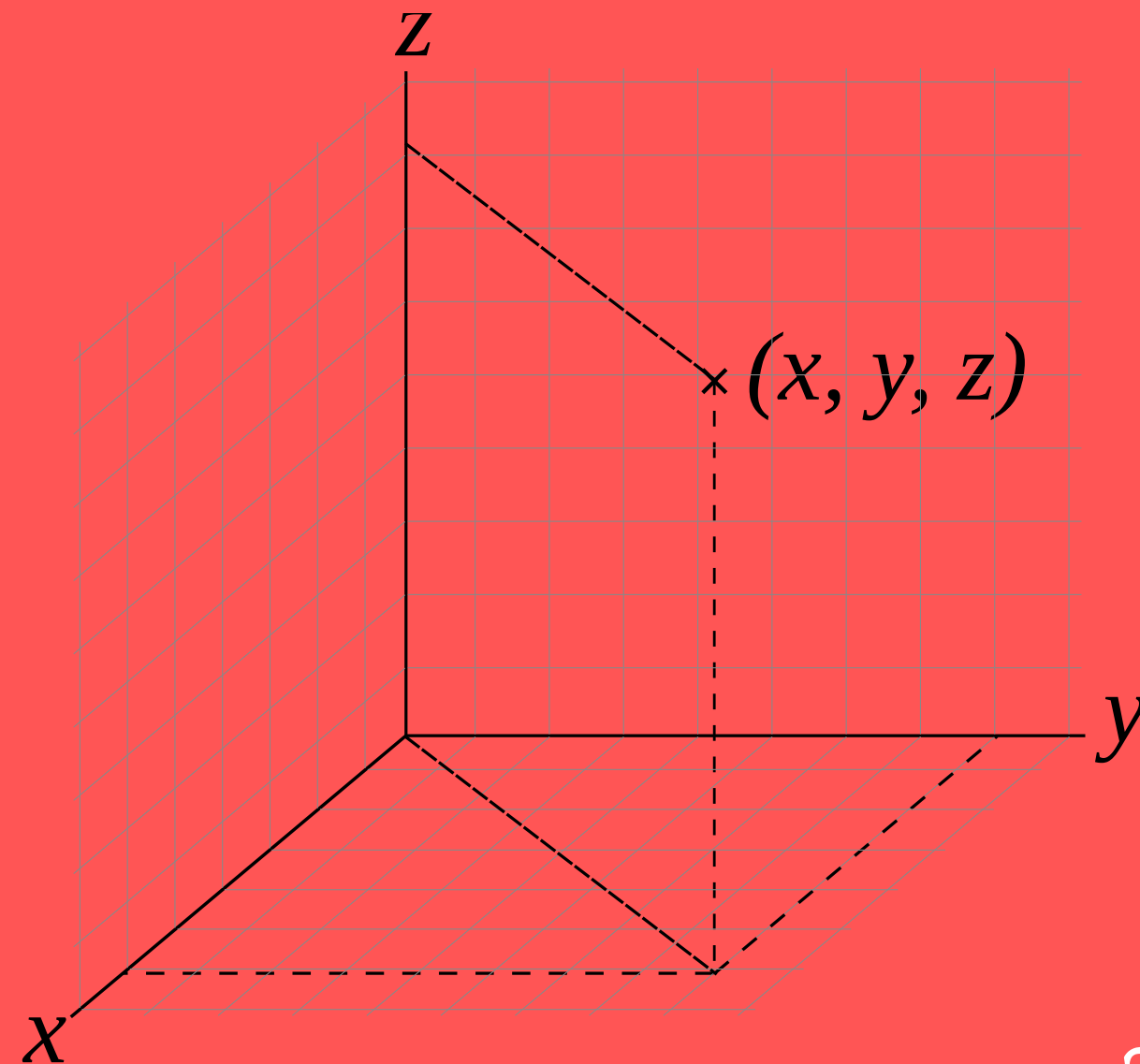


2D coordinate system



2D Cartesian Coordinate
showing a point along x and y axis

3D coordinate system



3D Cartesian Coordinate
showing a point along x, y and z axis

2D VS 3D



01

2D uses length and breadth

02

2D uses x and y planes

03

2D has four quadrants

04

Equation for distance
between two points has
only x and y

01

3D uses length, breadth
and height

02

3D uses x,y and z planes

03

3D has eight octants

04

Equation for distance
between two points has x,
y and z





How 2D Cartesian planes are used to create animation

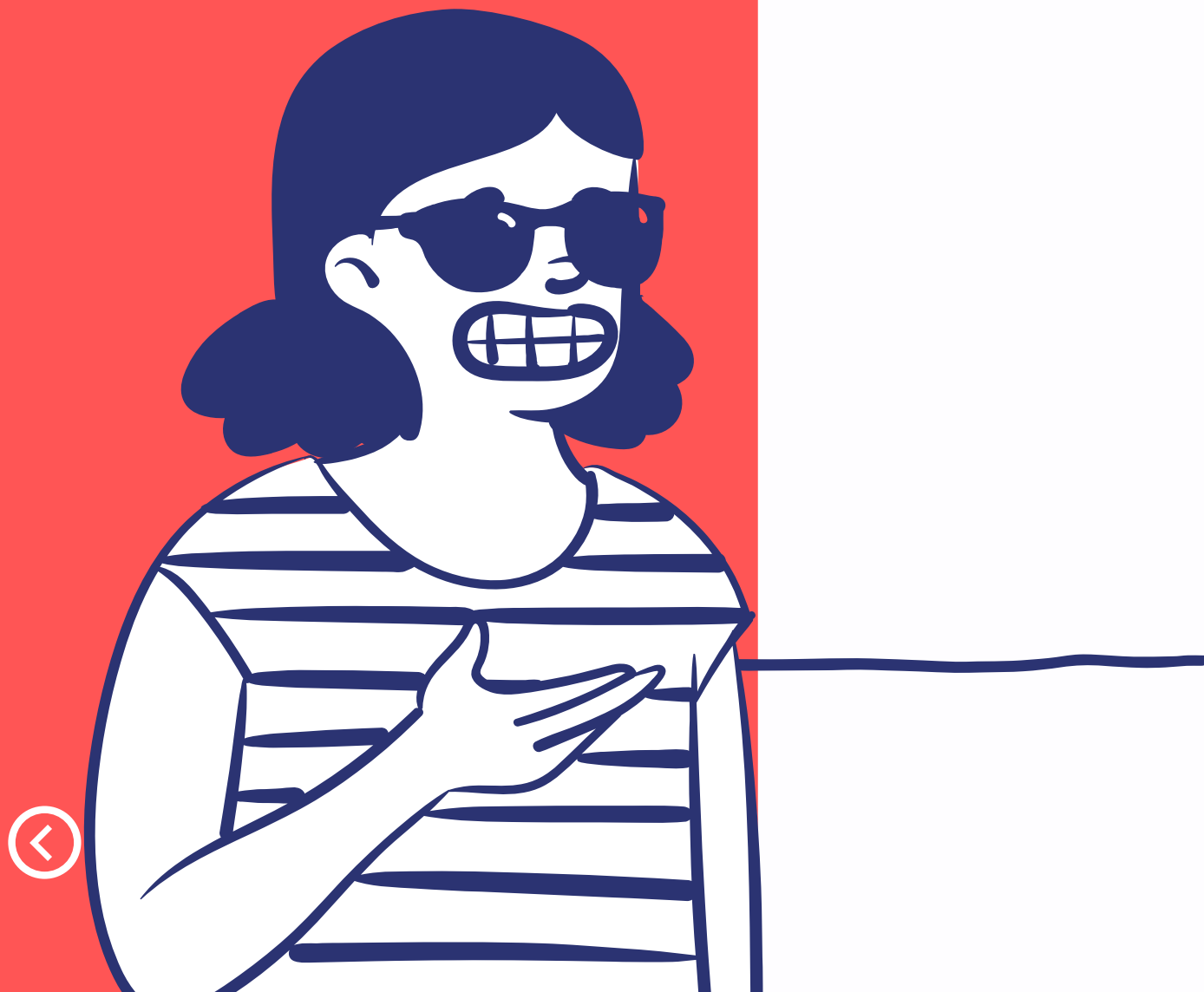
- Viewing and Modelling
- Window (Numbers) and Viewport (Pixels)
- Translation
- Rotation
- Scaling (Bigger or smaller)
- Shear (Tilt)



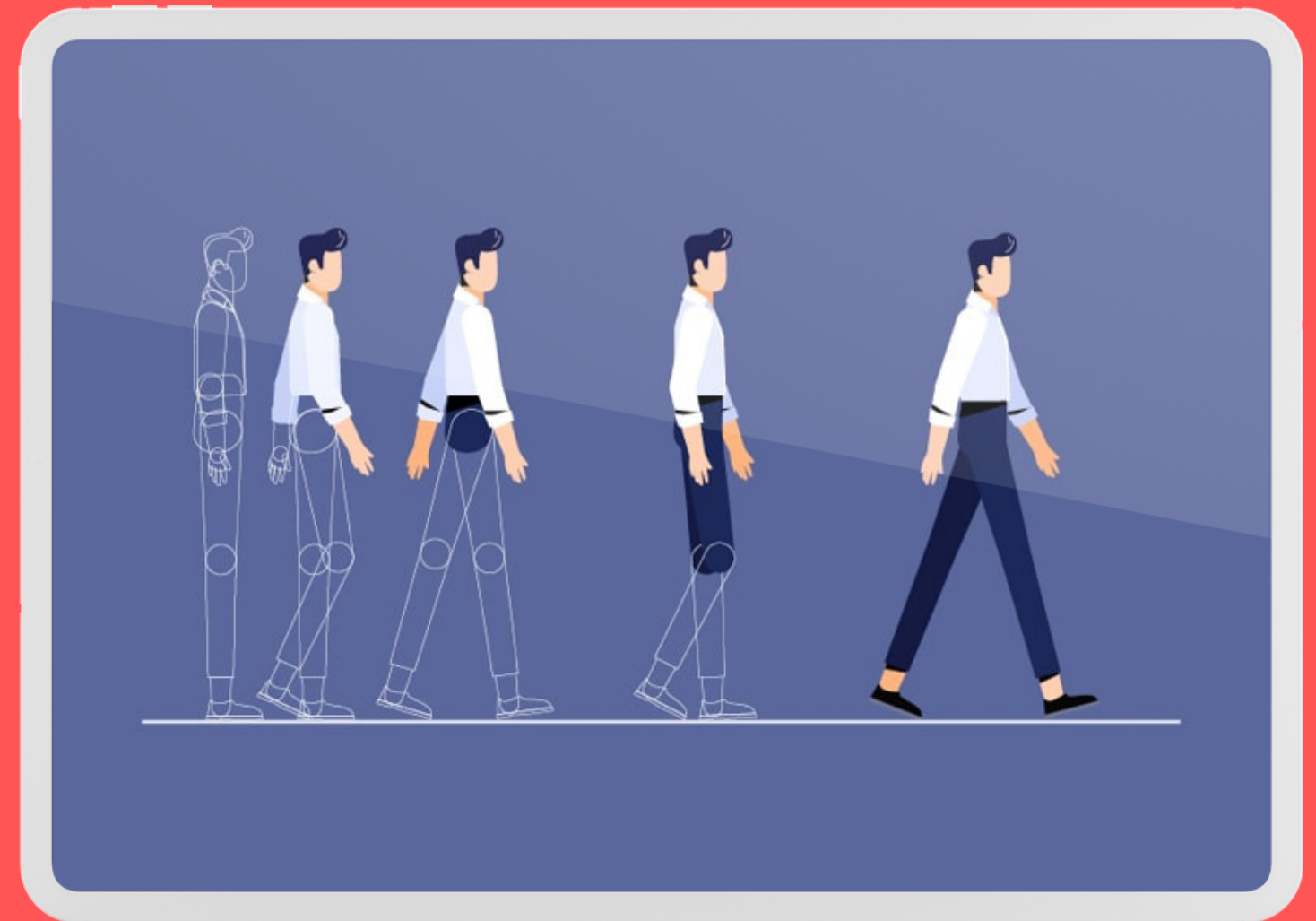
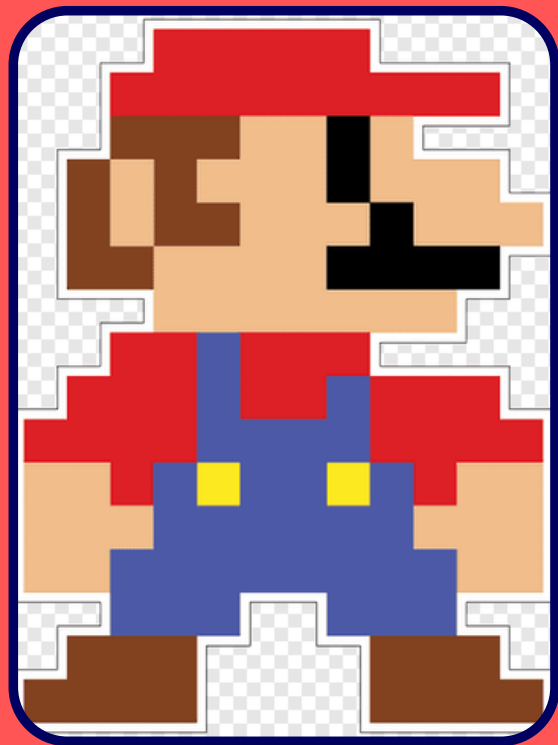


How 3D Cartesian planes are used to create animation

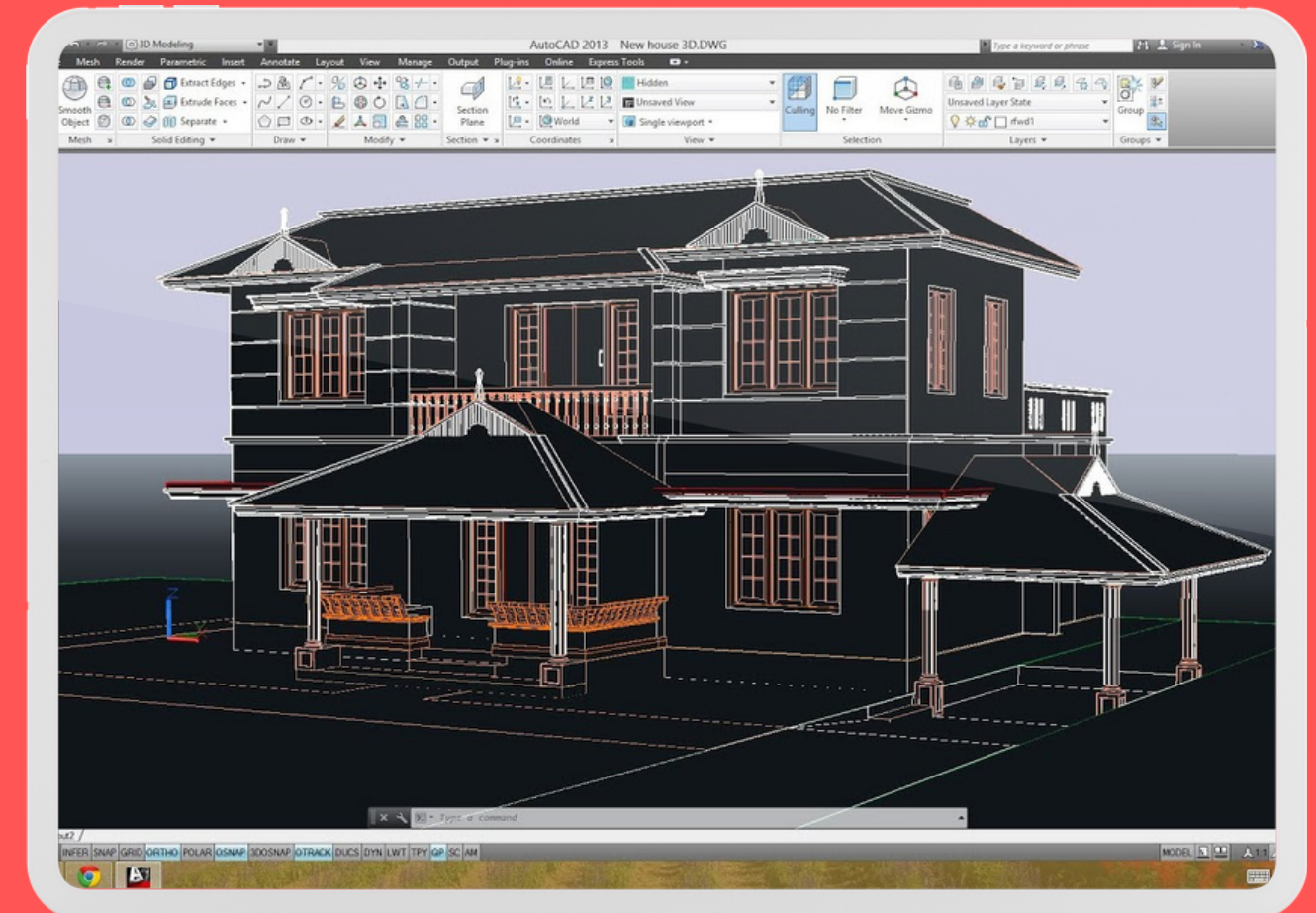
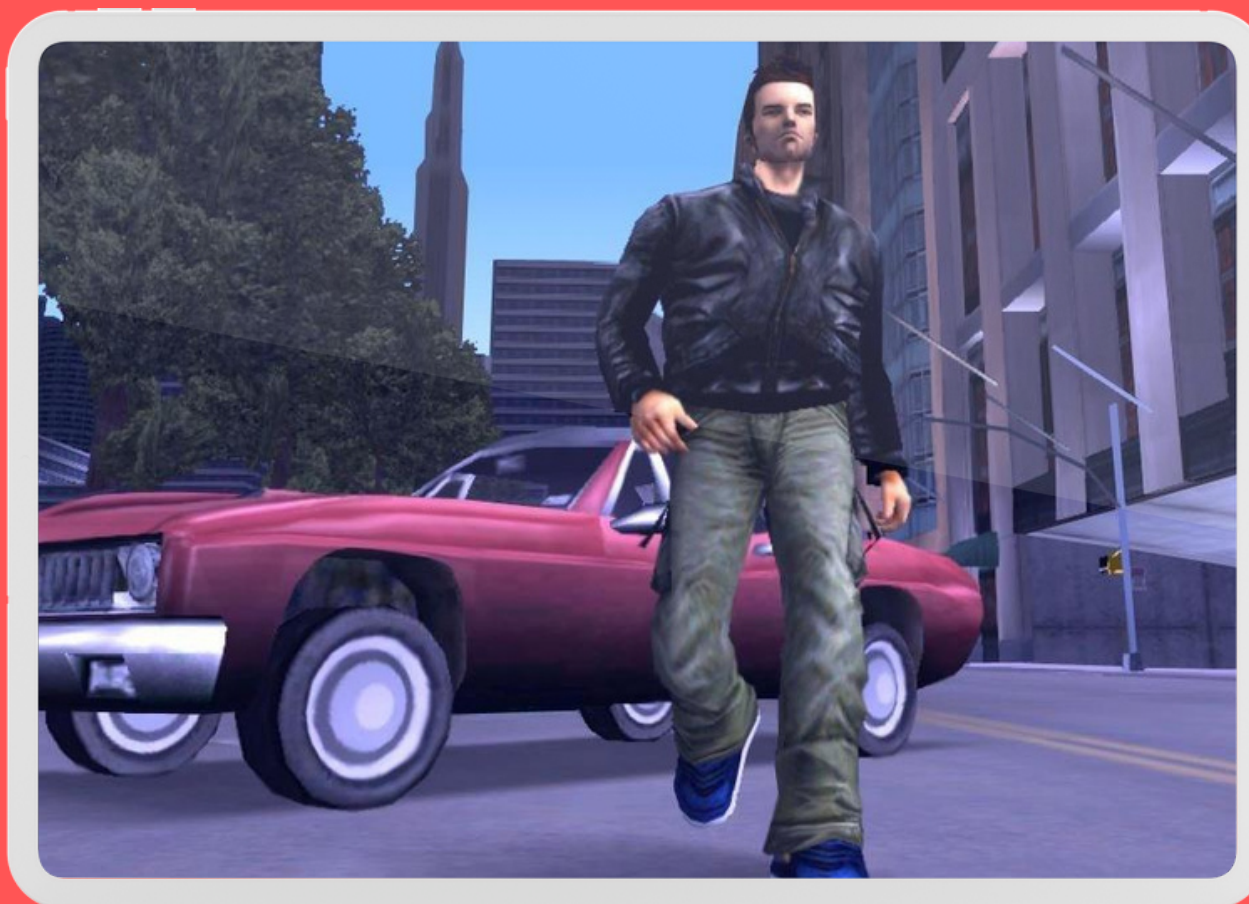
- Digital sculpting
- Boolean Modelling
- Laser Scanning
- Box Modelling
- SubD Modelling
- NURBS(Non-Uniform Rational B-Spline) Modelling



Examples of 2D animation



Examples of 3D animation



Applications of 2D animation



Gaming

Since the invention of 2D animation, it has been popularly used in the video gaming industry.

Movies and TV

2D animation in television has been made popular by companies like Disney and pixar.

Branding

It is usually used for company advertisements and to help the customer get a feel of the company's values



Applications of 3D animation



Gaming

Since the invention of 3D animation, it has been popularly used in the video gaming industry.

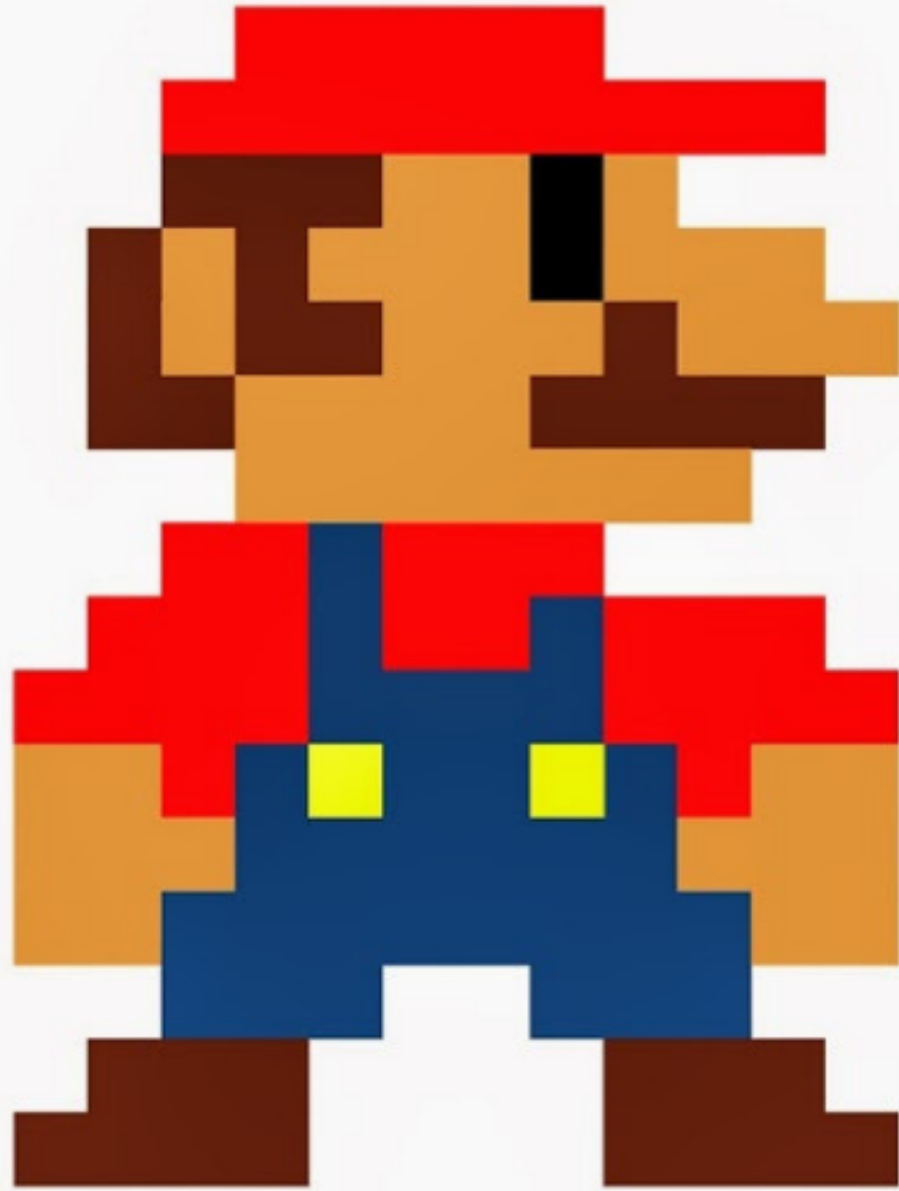
Movies and TV

3D animation in television has been made popular by companies like Disney and pixar.

Professional Modelling

Many professions use 3D animation to render models and develop software designs of solid projects.



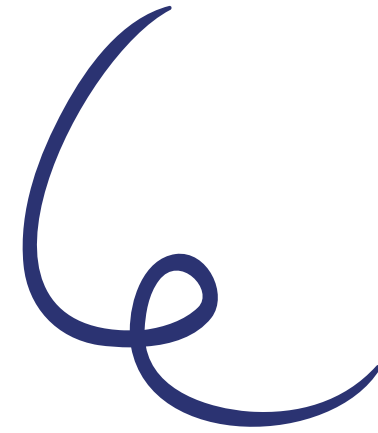


VS.



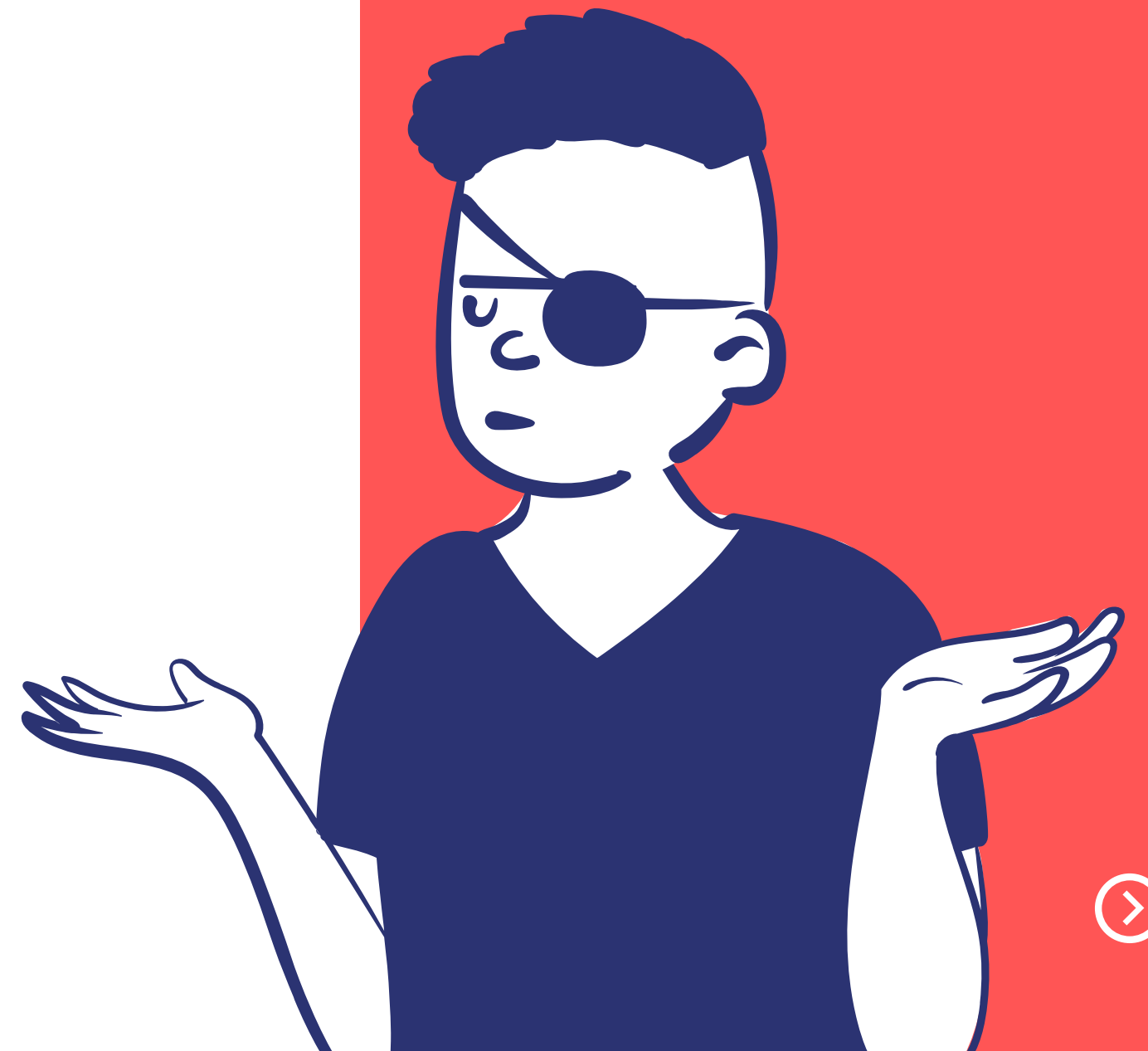
**WHAT IS THE DIFFERENCE BETWEEN
2D AND 3D ANIMATION?**

Which is the better one?



Based on this research, it cannot be outrightly said which of the two systems (2D and 3D coordinate systems) is better as they have different uses and applications.

However, in modern Animation, 3D is more commonly applied as it allows objects to look closer to reality than if they were in 2D dimensions (stick-like characters), especially when portraying living things.



*Thank
you!*