MINIMUM & MAXIMUM VALUES

min() max()

OF ROW OR COLUMN VECTOR

a = [1 2 3]

min(a) → 1

max(a) → 3

OF 2D ARRAY

a = [1 2 3
     5 1 4]

WANT THE ONE MINIMUM VALUE

RETURNS MIN/MAX OF EACH COLUMN

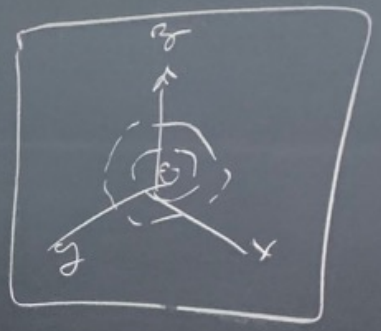
min(a) → 1 1 3 → min(min(a)) → 1

max(a) → 5 2 4 → max(max(a)) → 5

GRAPHICS

plot() → VECTORS

surf() & mesh(?) → "3D" plot of 2 arrays



IMAGING OF DATA IN 2D ARRAYS

image(), imagesc()
↳ SCALED

colormap

IMAGING OF RGB DATA IN 3D ARRAYS (row, col, page)

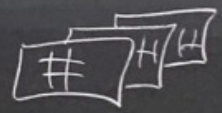


image → AXES DISPLAY ROW & COL #

imshow → AXES DO NOT " " " "

TYPES OF GRAPHICS → BOTH TYPES DISPLAYED ON SCREENS WITH PIXEL ARRAYS

"BIT MAPPED"

"VECTOR GRAPHICS"

→ CAN ALSO BE DISPLAYED AS LINES ON CRT PHOSPHOR SCREEN

CATHODE RAY (e^-) TUBE

LOTS OF MEANINGS DEPENDING ON FIELD

MATH → REPRESENT AS ARROW WITH ORIGIN, DIRECTION, MAGNITUE

PROGRAMMING → 1D ARRAY, e.g. ROW VECTOR [1 2 3]

BIOLOGY → HOW DISEASE SPREADS

ANIMATION

→ plot, wait, clear plot, plot next

→ "GREEN SCREEN" WITH BIT MAPPED

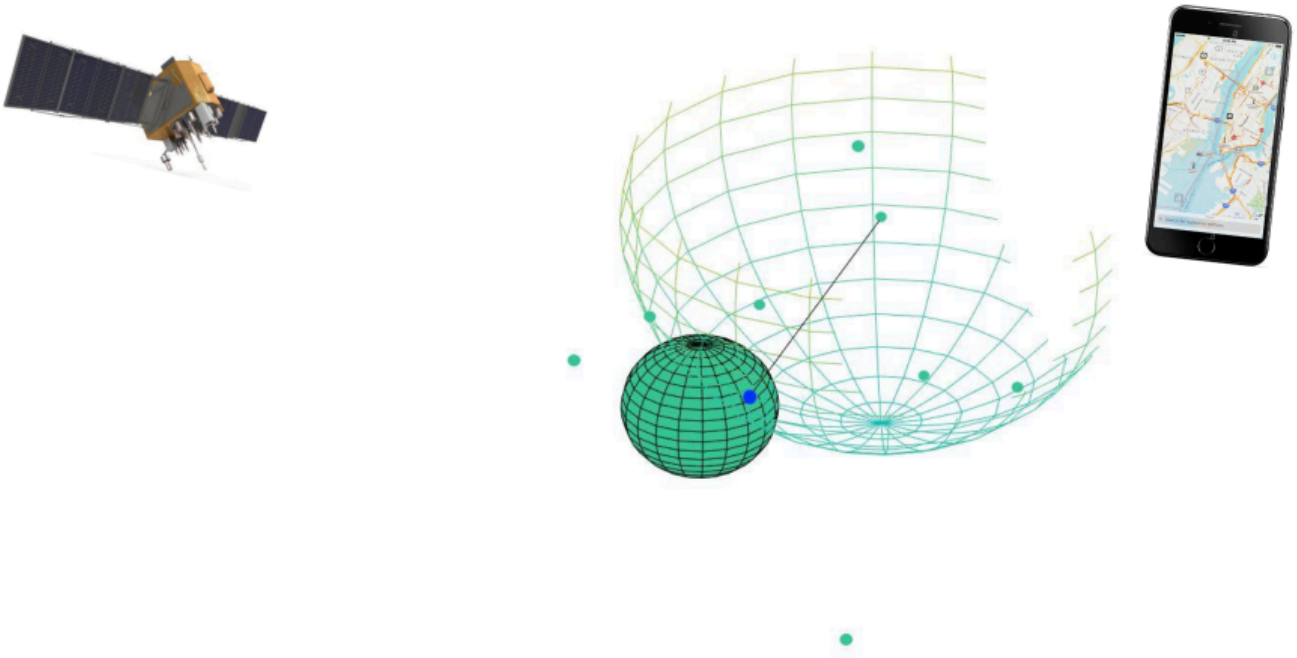
→ REPEAT TRANSFORM OF VECTORS

MATRIX MULTIPLICATION
OF TRANSFORM MATRIX TIMES
MATRIX OF VECTOR END POINTS

We showed examples posted at ReactorLab.net > Resources > Matlab including

- **the Graphics & Sound page,**
- **the heat transfer example on the Diffusion & Heat Transfer page, and the**
- **use of surf( ) and mesh( ) functions in the GPS example on the Notes & Examples page as shown below**

Simplified GPS model



The GPS receiver then computes its location from the intersection of 3 or more satellite spheres with Earth's spherical surface (a 4th sphere), where the intersection of 2 spheres is a circle, 3 is 2 points, 4 is one point, a problem in "linear algebra," solving multiple, coupled algebraic equations