

# 3D SPACE

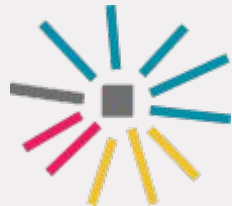
PALIMPSEST

# 3D SPACE

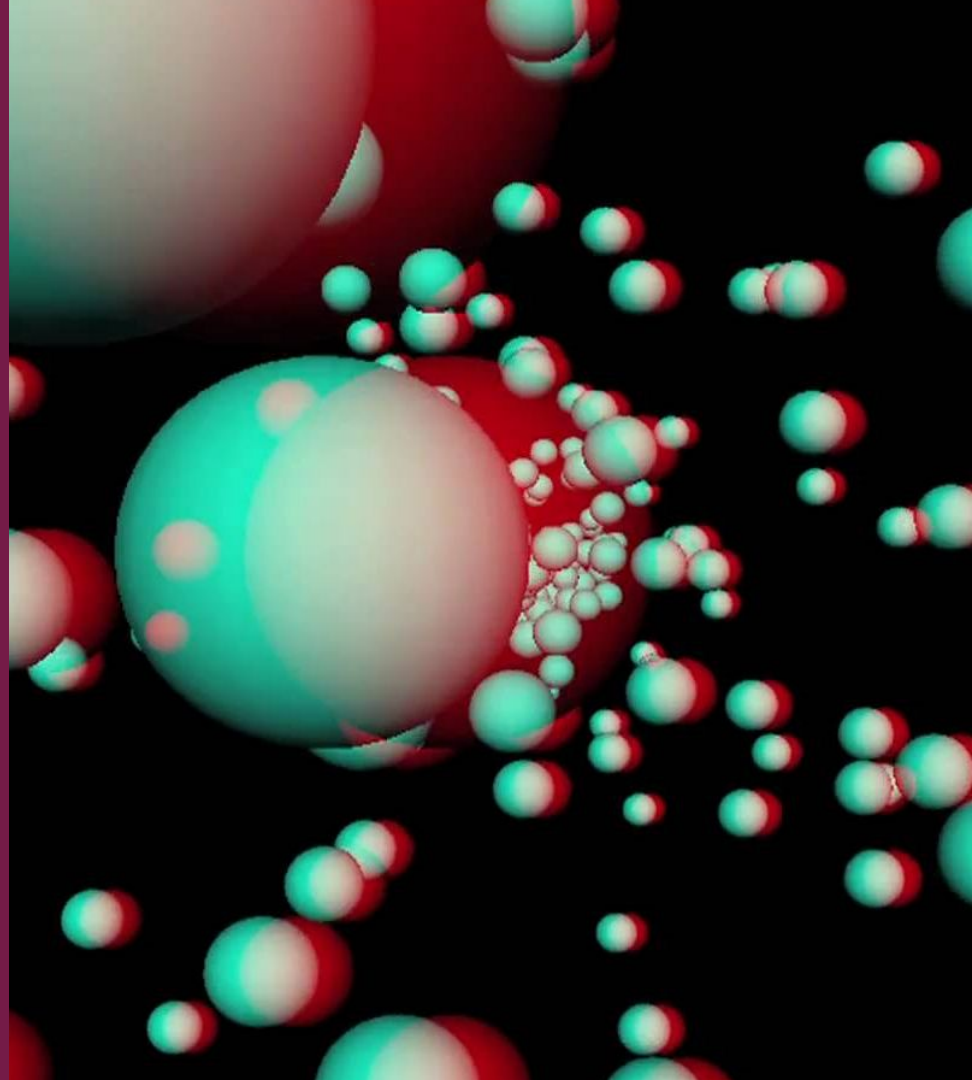
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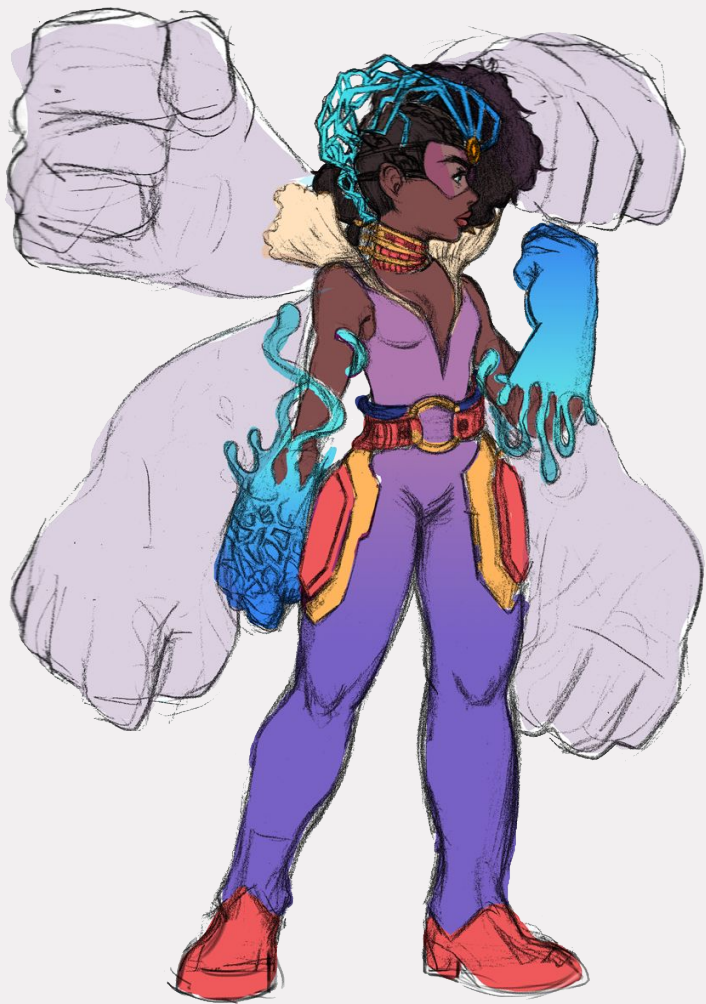
- Representations of Space
- 0D
- 1D
- 2D
- 3D
- Coordinate Systems
- EXERCISE

# 3D SPACE



What is it?





It's the world as we  
perceive it.

**Objects have:**

**Positions**

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**Objects have:**

**Positions relative  
to one another**

---

Objects have:

THERE

**HERE**

---

Objects have:

FAR

**NEAR**

---

Objects have:



---

**DUH, RIGHT?**

**It matters because:**

---

It matters because:

To make a game  
we have to **FAKE**  
**ALL OF THIS**

---

It matters because:

To make a game  
we have to FAKE  
**ALL** OF THIS

---

It matters because:

To make a game  
we have to FAKE  
**ALL** OF THIS

**\_\_\_ WITH MATH**

It matters because:

To make a game  
we have to FAKE  
**ALL** OF THIS

***WHY???***

---

This



This



This



This



How many  
dimensions  
does a screen  
have?

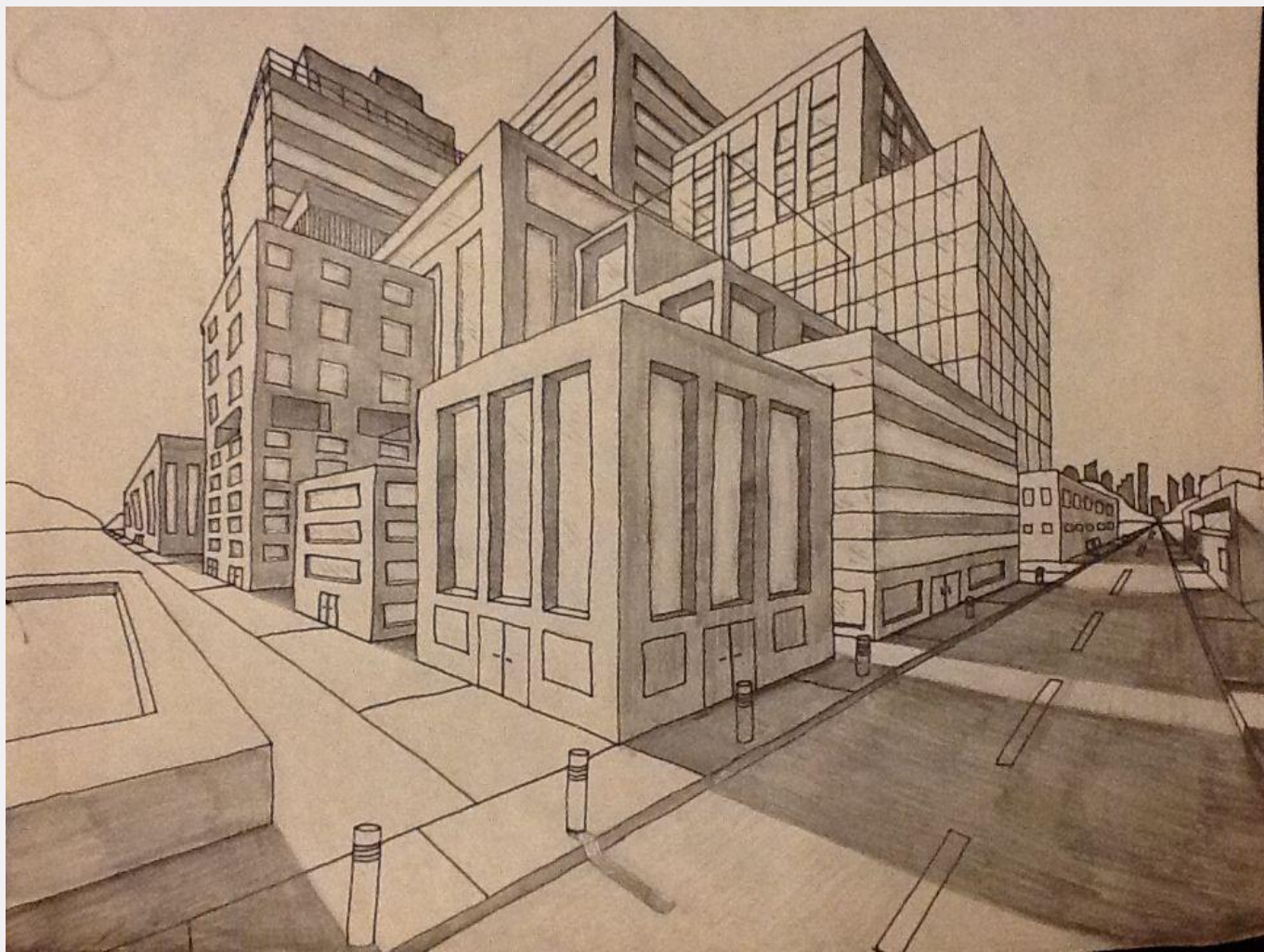


How many  
dimensions  
does a screen  
have?



This  
is 2D





# 3D SPACE

# DIMENSIONS

0d



# DIMENSIONS

0d



Point

# DIMENSIONS

1d



# DIMENSIONS



1d



Line

What does the  
letter 'd'  
represent?

0d

1d

2d

3d



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# Dimensions



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# Dimensions

They have names



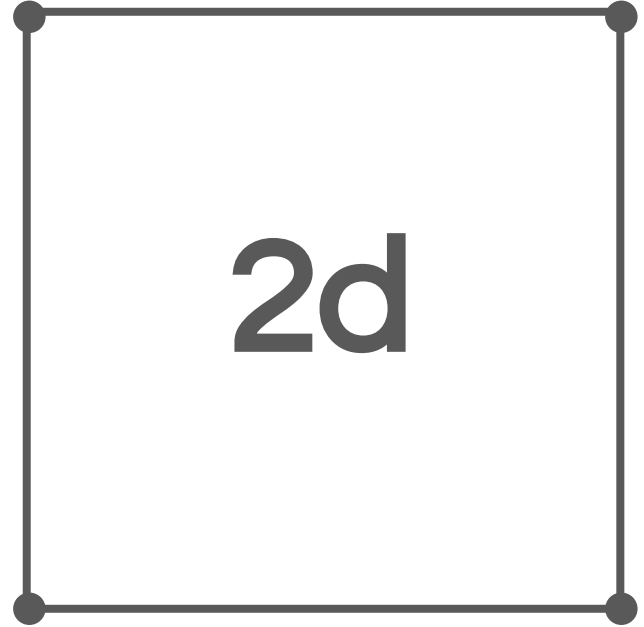
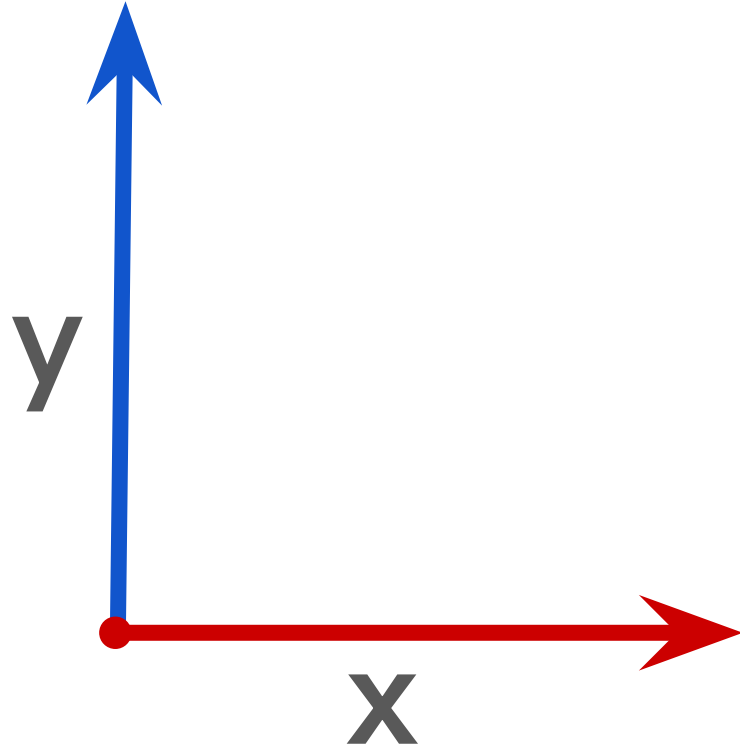
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But they're not  
parallel

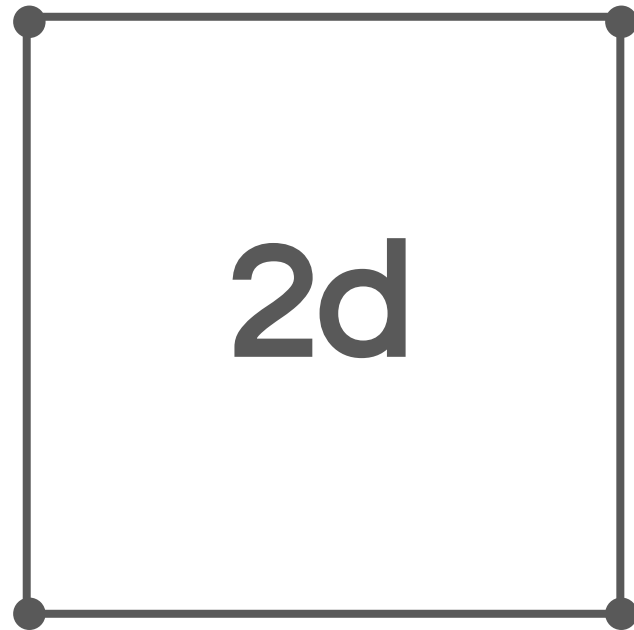
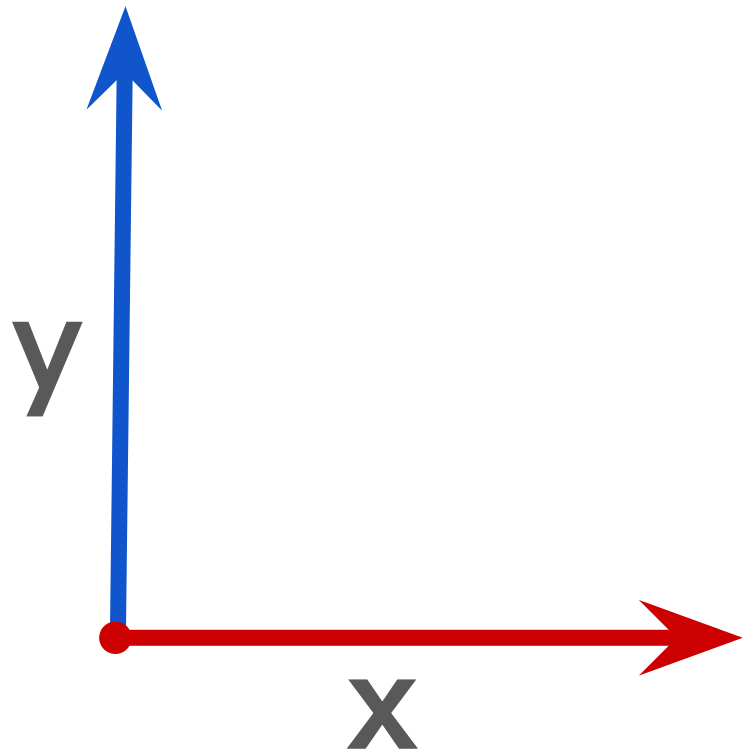


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# DIMENSIONS



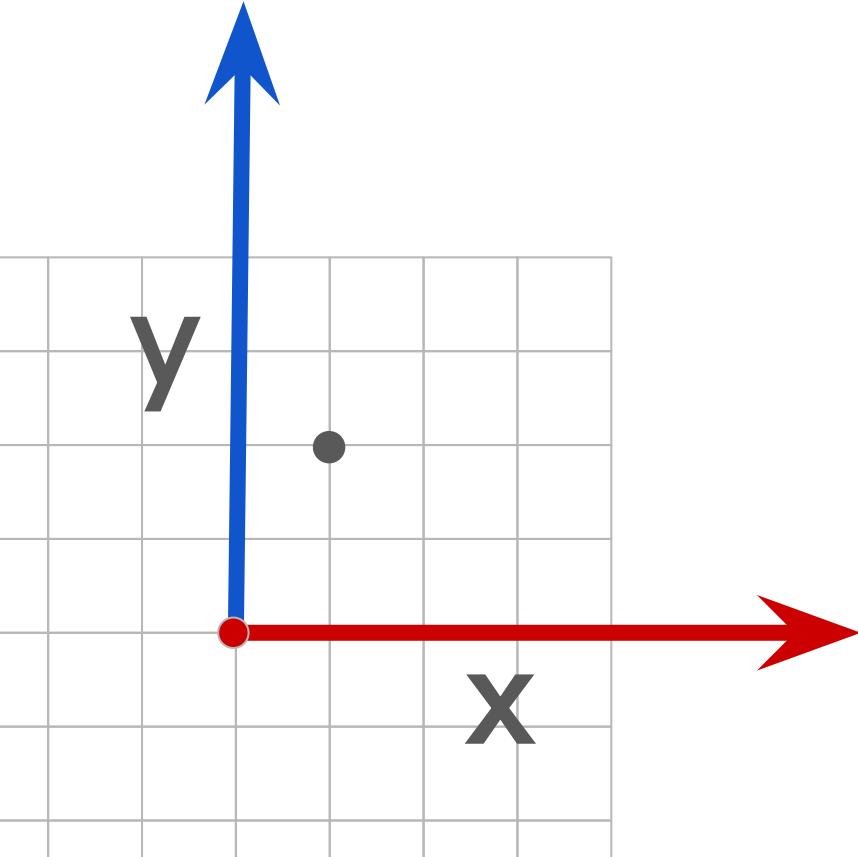
# DIMENSIONS



$2d$

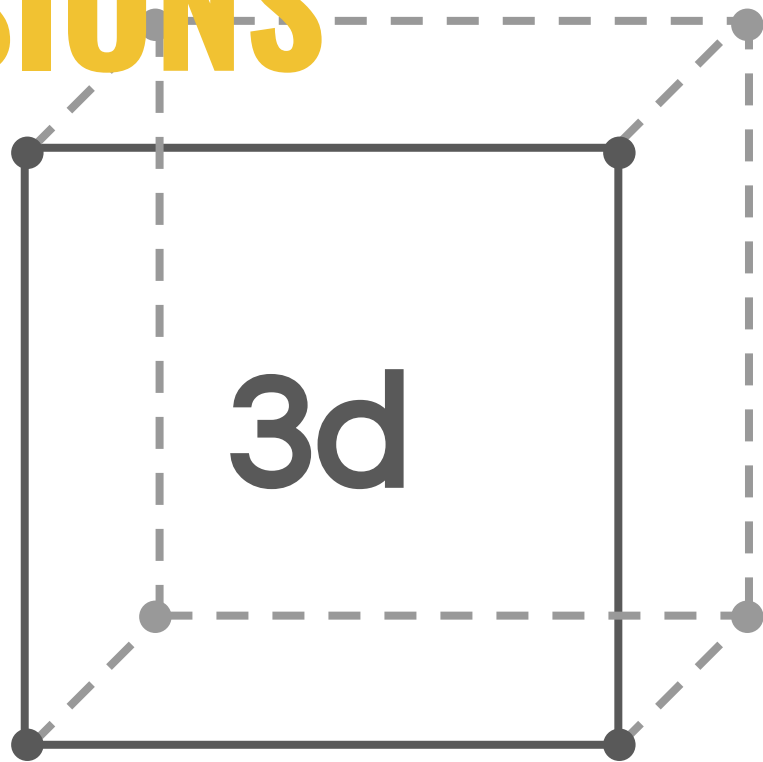
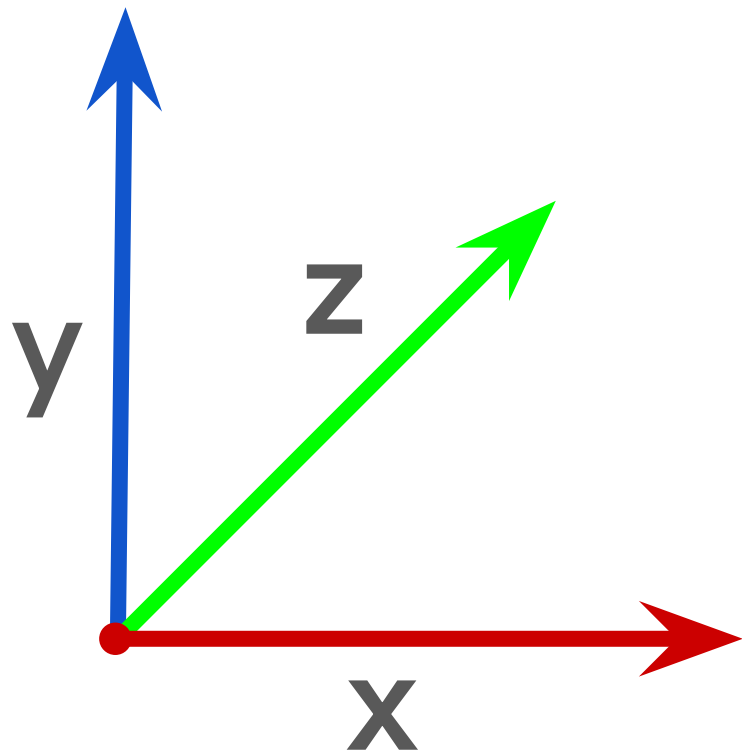
Plane

# COORDINATES

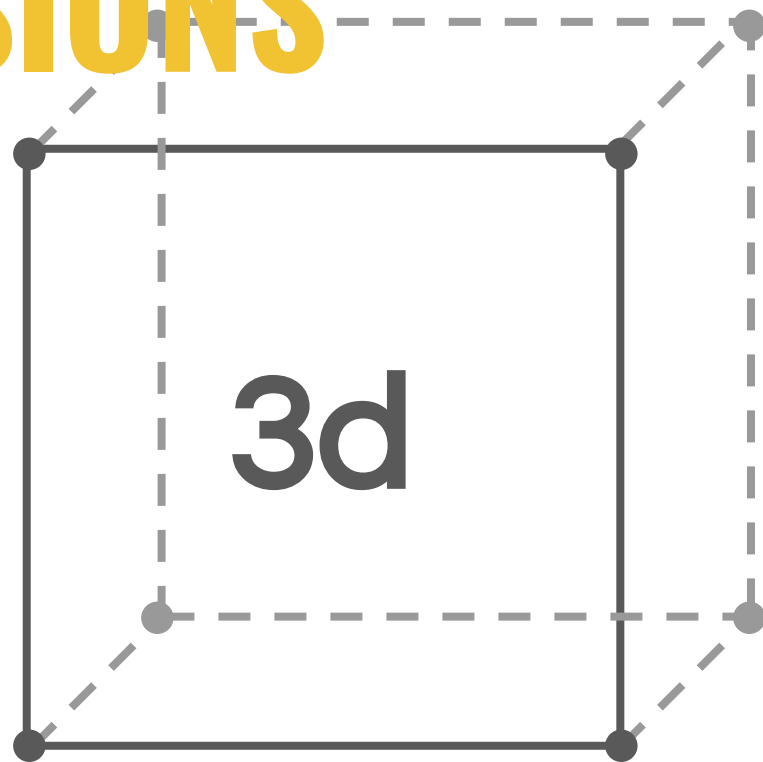
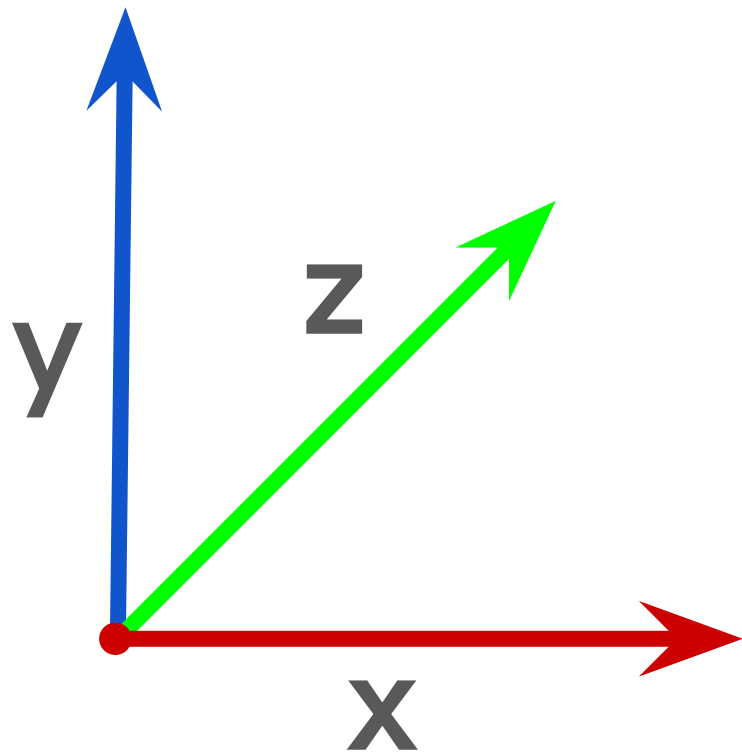


$(x, y)$   
 $(1, 2)$

# DIMENSIONS

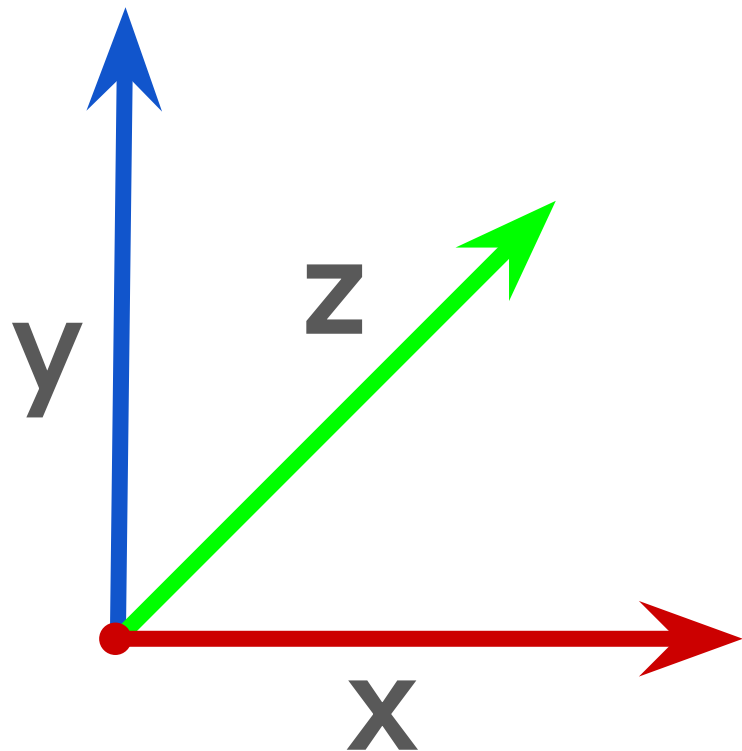


# DIMENSIONS



Space

# COORDINATES



$(x, y, z)$   
 $(1, 1, 2)$



# EXERCISE

**Define a plane**

**Define a space**

What do we need  
for a plane?

0d

1d

2d

3d

---

What do we need  
for a space?

0d

1d

2d

3d

---



**For 4D Space, go see  
A Wrinkle In Time**

NEXT UP

Vectors

