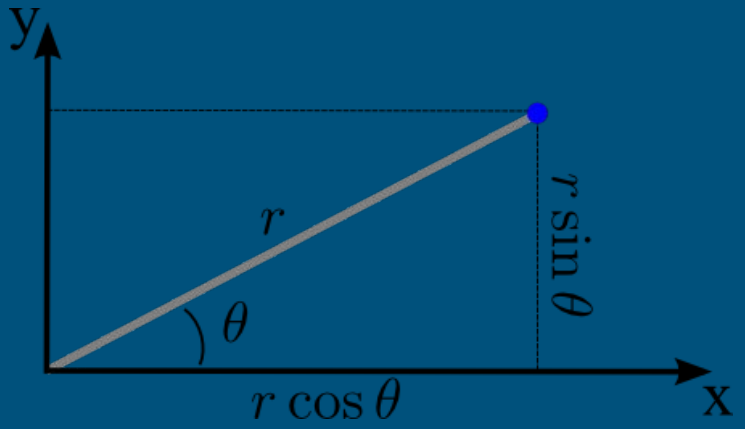
CSE 165 Discussion 1

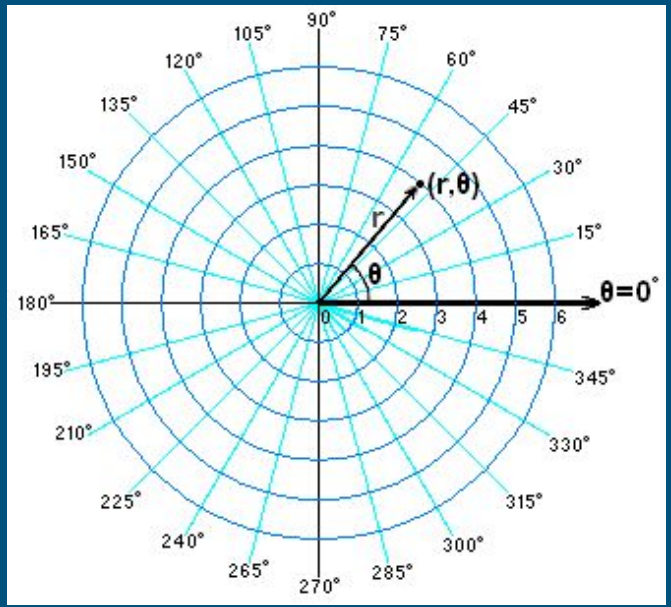
To Build a Wall...

- Instantiation was covered in class earlier.
  - But where to instantiate? And what angle?
- Remember polar coordinates?
  - Use radius r and angle θ to calculate coordinates.
  - X = r cos (θ)
  - Y = r sin (θ)
- How can you make a circle with this?



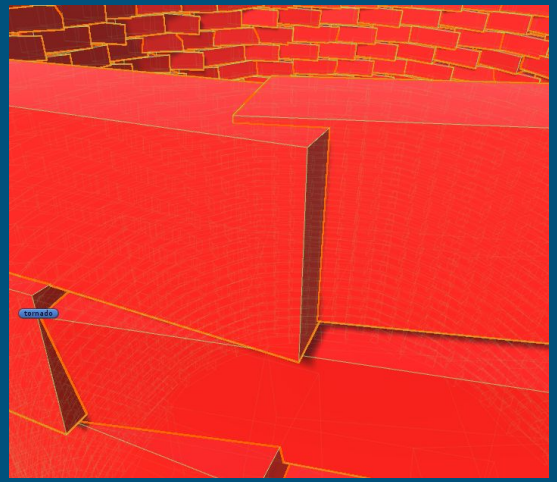
To Build a Wall...

- Keep radius constant and change angle.
- Now how to apply it to the 3D wall?
  - Remember the issues of height and rotation!
- Be creative! This is just one way to do it.



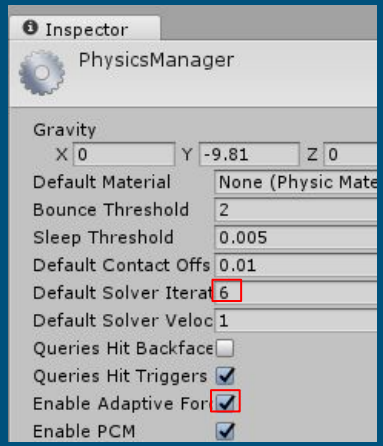
Brick Physics

- Help, the wall is exploding
  - Don’t let colliders overlap!
  - Press Pause then Play to see if that’s happening!



Brick Physics

- Help, the wall is imploding/falling apart
  - In Edit->Project Settings-> Physics, there's a few useful options.
    - "Enable Adaptive Force" lets things stack better.
    - Setting "Default Solver Iterations" higher makes things more stable. Try 30.
  - Increase drag of the rigidbody of the brick
    - This causes more force to be required to move it.
  - Add a physics material to the brick (Less effective)
    - Increase static friction of brick



Dwelling: Timers

- Raycasting was covered in class earlier.
  - But how long was something dwelled on?
- Time.deltaTime()
  - Returns amount of time since last frame as a float!
- Update()
  - Automatically runs every frame!
- Combine these two to know how long something was dwelled on.

```
float timeHoldingSpace;

// Update is called once per frame
void Update () {
    //If the user presses space, count the time.
    if (Input.GetKey(KeyCode.Space))
    {
        timeHoldingSpace += Time.deltaTime;
        Debug.Log(timeHoldingSpace);
```

Projectile Physics

- Use Rigidbody.AddForce to launch objects in a direction.
  - You need a force vector and a force mode.
- Remember transform.forward gets the world forward vector of an object.
  - You can then scale this for more or less force.
- Use ForceMode.Impulse for instantaneous speed.
- Alternatively, you can directly edit a rigidbody's velocity.

Unity Tricks

- Place objects at your viewport position and rotation
  - Control+Shift+F with an object selected.
- Know when you are in play mode!
  - Edit-> Preferences -> Colors then Play Mode Tint.
- Organize things in a sane way
  - You can drag tabs to create a good layout.