the particle system

kinetic energy = (1/2) \* m \* v \*\*2

thus velocity = ((2 \* ke ) \* (1/m))\*\*(1/2)

the particle will have a velocity and accelleration and will move until it hits something then break into smaller particles.

Variables: mass, Vx, Vy, dV/dt, dV/dt, drag, friction\_threshold. lifespan

functions

move particle: this moves the particle.

move character: this simulates the character moving by moving the particle the oppasite way.

create particle: this creates a particle.

impact split: this splits the particle into multiple particles.

set\_particle\_shape: this creates a polygon of whatever shape you want the particle:

powered\_particle: this makes the particle powered so it has accelleration.

adjust velocity: this accellerates particle and applies drag. if velocity below friction threshold it stops moving so velocity = 0 is velocity < friction threshold.

delete\_particle: gets rid of the particle if it hasnt moved for longer than its lifespan.

particle shapes and equations

1. x = (2.3)\*cos(10t) + cos(23t) and y = (2.3)\*sin(10t) - sin(23t)
2. x = sin(9t) and y = sin(10t)
3. x = t + sin(5t) and y = t + sin(10t) : this looks like a knot in a slanted line.
4. x = t + sin(5t) and y = t + sin(6t)
5. x = a + cos(t) and y = a\*tan(t) + sin(t) this is a ball turning into wave as a changes
6. x = sin(2t) and y = sin(t+sin(2t)) with -3.15 < t < 3.15 this is a hourglass shape with some knobs.
7. cos(t) and (t+sin(t) -1.5 < t < 1.5
8. sin(t) and (t+cos(t) + 1.5) with -pi < t < 0 both shapes same but revered. a ) shape.