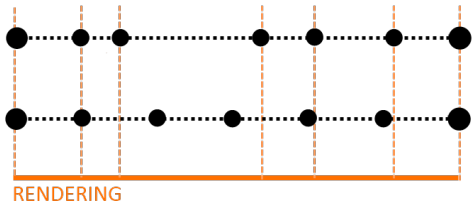
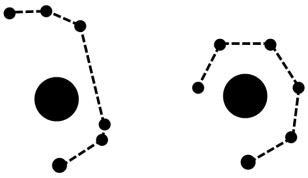
Zmienna delta

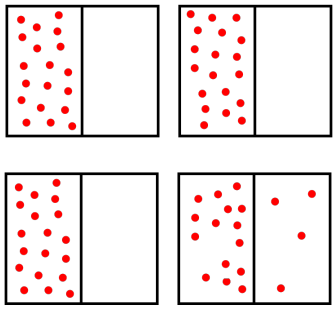
```
float dt = 0.0f;
float lastUpdateTime = GetCurrentTime();



while(true)
{
        dt = GetCurrentTime() - lastUpdateTime;
        lastUpdate += dt;

        GrabInput();


        UpdateGame(dt);


        RenderGame();
}
```

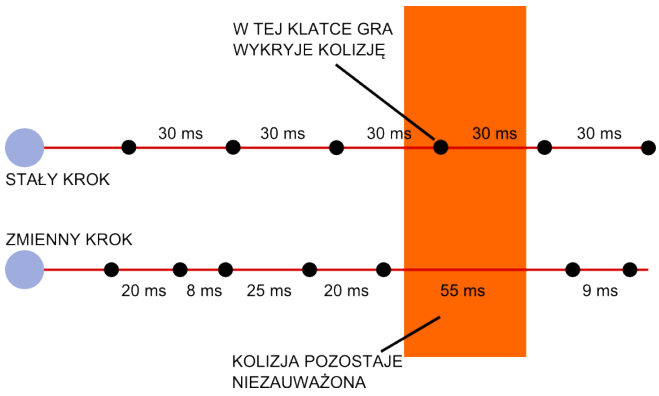
Stała delta

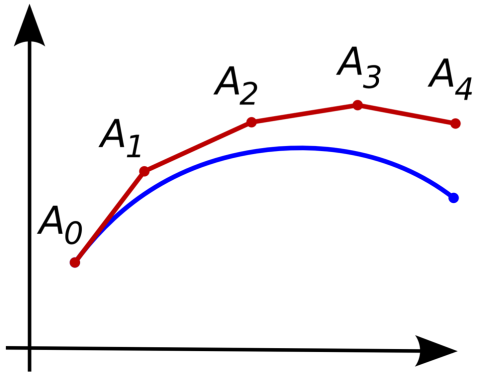
```
float dt = 0.0f;
float lastUpdateTime = GetCurrentTime();

float accumulator = 0.0f;
const float TIME_STEP = 0.03;

while(true)
{
        dt = GetCurrentTime() - lastUpdateTime;
        lastUpdate += dt;
        accumulator += dt;
        GrabInput();
        while(accumulator > TIME_STEP)
        {
                UpdateGame(TIME_STEP);
                accumulator -= TIME_STEP;
        }
        RenderGame();
}
```

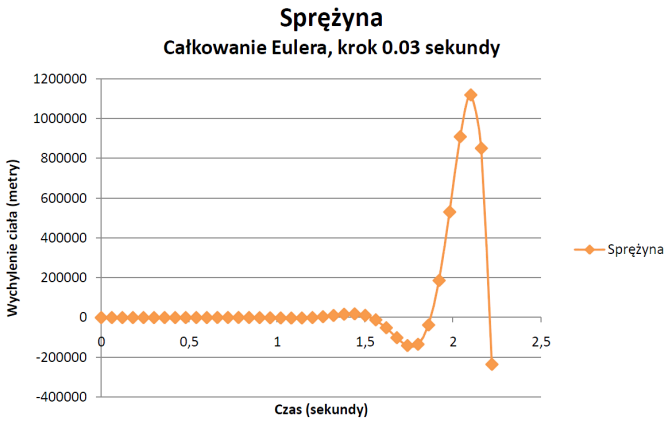


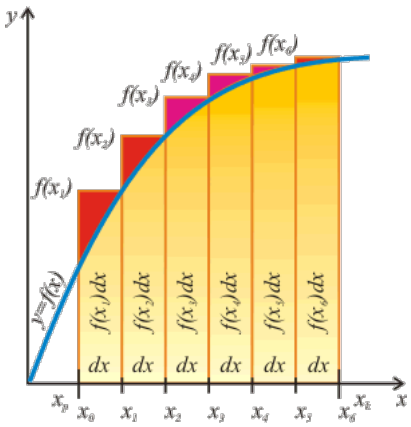












$$F_t = -kx_t$$

$$x_{t+1} = x_t + F(t) \cdot \frac{t^2}{2} + C$$

http://temporal.pr0.pl/devblog/artykuly/jak-nalezy-pisac-aktualizacje-stanu-gry/
http://gafferongames.com/game-physics/fix-your-timestep/