

Let n be the number of frames in the animation. Let s be the starting scale and e the ending scale of the animation. Let x_i for $i \in \{1, 2, \dots, n\}$ be the scale of each frame of animation. Let c be some constant we want to find, which is the ratio between consecutive frames. We want these values to have the following relationships,

$$\frac{x_{i+1}}{x_i} = c \quad \forall i \in \{1, \dots, n-1\} \quad \text{constant ratio between consecutive frames}$$

$$x_1 = s \quad \text{first frame equals starting scale}$$

$$x_n = e \quad \text{last frame equals ending scale.}$$

Using these properties we get

$$\frac{x_2}{x_1} = \frac{x_2}{s} = c$$

$$x_2 = cs$$

$$\frac{x_3}{x_2} = c$$

$$x_3 = x_2 c = c^2 s$$

$$x_4 = x_3 c = c^3 s$$

$$\vdots$$

$$x_i = c^{i-1} s$$

$$\vdots$$

$$x_n = e = c^{n-1} s$$

Leading us to a formula for c .

$$c^{n-1} = \frac{e}{s}$$

$$c = \left(\frac{e}{s}\right)^{\frac{1}{n-1}}$$

So that using $x_i = c^{i-1} s$ we get the equation for the scale of a frame

$$x_i = s \left(\frac{e}{s}\right)^{\frac{i-1}{n-1}}.$$