



Introduction to Computer Graphics with WebGL

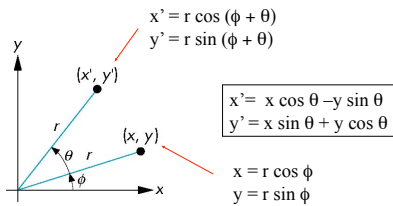
Ed Angel

First Assignment Tessellation and Twist



Rotation (2D)

Consider rotation about the origin by θ degrees
- radius stays the same, angle increases by θ





Twist

• Now let amount of rotation depend on distance from origin giving us **twist**

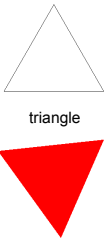
$$x' = x \cos(d\theta) - y \sin(d\theta)$$

$$y' = x \sin(d\theta) + y \cos(d\theta)$$

$$d \propto \sqrt{x^2 + y^2}$$

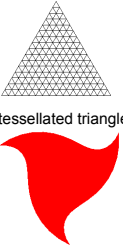
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Example



triangle

twist without tessellation



tessellated triangle

twist after tessellation

Angel and Shreiner: Interactive Computer Graphics 7E © Addison-Wesley 2015

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Tessellation

- Tessellation: dividing object, a curve, a surface or a volume, into smaller parts, each of which can be rendered independently
- Two choices for triangle
 - Compute location of vertices for all the smaller triangles
 - Recursive subdivision

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Assignment 1

- Display a twisted triangle
- You may set all parameters in the JS file
 - vertices of triangle
 - amount of twist
 - degree of tessellation
- Options
 - use buttons, menus or sliders to set parameters
 - twist other shapes

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