


Home work 3 / CPSC 314

Q1a)

Flat shading : 1) evaluate lighting model at vertices
2) choose one of the colors for full triangle

Gradient shading: 1) evaluate lighting model at vertices
2) interpolate colors across triangle

- 3.1a) light hits the corner vertices at the same angle to the normal
also the distance to the light source is the same for each vertex
→ all vertices have the same color.
→ that color is some medium gray (light is not shining straight down)
→ the surface is uniform gray
- b) Phong model is directing reflected light away from the camera
→ all vertices are black (very dark) 
→ surface is black
- c) same gray surface as for a) since gradient shading interpolates between identical values!
- d) same as b) - interpolation between all black vertices
- e) smoothly varying gradient from medium gray at vertices to light gray or white at center (diffuse model is now evaluated every place)
- f) dark / black surface with a crisp, round specular highlight in the center

3.2 a

See lecture slides

3.2 b

Bresenham:

- + pure integer alg. (good for hardware)
- conditional tests (if) inside loop
(bad for modern CPUs)

DDA:

- float algorithm
- + no conditionals
- possible accumulation of error
(adding slope n over and over)