$$pLerp(t, p0, pM) := p0 \cdot (1 - t) + pM \cdot t$$

$$sqrLerp(t, p0, pM) := p0 \cdot \left(1 - \sqrt{t}\right) + pM \cdot \sqrt{t}$$

$$ro(h) := Adens0 - \frac{h}{Ha} \cdot Adens0$$

$$vpoint(s) := pLerp(s, Pv, Pve)$$

$$Lendp(s) := pLerp(s, endpPv, endpPve)$$

$$scanLightPt(t, s) := pLerp(t, vpoint(s), Lendp(s))$$

$$RayAtmLen(s) := pLerp(s, endlPv, endlPve)$$

interpolated p

$$H(s) := pLerp(s, 0, Ha) \rightarrow Ha \cdot s$$

$$Hr(t, s) := pLerp(t, H(s), Ha) \rightarrow Ha \cdot s \cdot (-t + 1) + Ha \cdot t$$

distar

$$curVLen(p) := pLerp(p, 0, LmaxV)$$

Length to current view t-point on view ray

$$SumDens(HS, HE, Len) := \int_0^1 ro(pLerp(t1, HS, HE)) \cdot Len \, dt1$$

Sum density over line, defined by heights

$$RemPower(Hs, He, Len, Pow0) := \left(1 - \frac{SumDens(Hs, He, Len)}{maxdens}\right) \cdot Pow0$$

Remaining power after travelling some distance at heights

remaining direct ray power, after travelling Len from Hs to He.

(1/(x+

$$vpHitPow(pv) := RemPower(H(pv), Ha, RayAtmLen(pv), LPower)$$

Total Ray power that hits point on view line

$$reflectedBack(pr) := vpHitPow(pr) \cdot focusP \cdot (1 - sk)$$

Ray power that is reflected towards eye as scattered light. hence (sk-1)

$$indirectEye(pn) := RemPower(H(0), H(pn), curVLen(pn), reflectedBack(pn))$$

$$indirectEye(0.5)$$

power that reaches eye form view t-point thourgh atmos.

This is one of the more complex formulas, probably should work as well. uh mathcat why.. just zoom in..

$$\int_0^1 indirectEye(pp) \cdot LmaxV \, dpp \longrightarrow \frac{Adens0 \cdot LPower \cdot LmaxV \cdot focusP \cdot ((20 \cdot endlPve + 40 \cdot endlPv + 80 \cdot LmaxV) \cdot maxdens - (7 \cdot Adens0 \cdot LmaxV \cdot endlPve + 8 \cdot Adens0 \cdot LmaxV \cdot endlPv)) \cdot (sk - 1)}{240 \cdot maxdens^2} + (LPower \cdot LmaxV \cdot focusP - LPower \cdot LmaxV \cdot focusP \cdot sk)$$

$$curPointH(0.2) \rightarrow curPointH(0.2)$$

$$\int_0^1 rayPowerToEye(s) \cdot LmaxV \, ds \to \int_0^1 LmaxV \cdot rayPowerToEye(s) \, ds$$

$$\int_0^1 RayAtmLen(s) \cdot ro(H(s)) \cdot LmaxV \, ds \to \frac{Adens0 \cdot LmaxV \cdot endlPve}{6} + \frac{Adens0 \cdot LmaxV \cdot endlPv}{3}$$

$$\int_0^1 rayPowerLeft(s) \cdot LmaxV \, ds \to \int_0^1 LmaxV \cdot rayPowerLeft(s) \, ds$$

$$\int_0^1 \int_0^1 ro(h(scanLightPt(t,s))) \cdot Lendp(s) \, dt \cdot LmaxV \, ds$$

$$\int_0^1 \int_0^1 ro(h(pLerp(t, pLerp(s,Pv,Pve), EndP(pLerp(s,Pv,Pve), toLdir)))) \cdot \left| \frac{d}{dt} pLerp(t, pLerp(s,Pv,Pve), EndP(pLerp(s,Pv,1