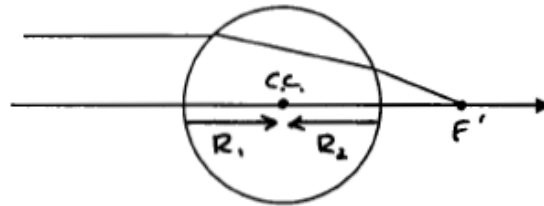


Sphere – Paraxial Raytrace



$$R_1 = 25 \text{ mm}$$

$$R_2 = -25 \text{ mm}$$

$$t = 50 \text{ mm}$$

$$n = 1.5$$

	0	1	2	3	4
C		.04	-.04		
t		∞	50	?	
n		1.0	1.5	1.0	
ϕ			-.02	-.02	
t/n		∞	33.333	12.5	
y	1	1	.3333	0	
nu		0	-.02	-.026667	
u					

$$\underline{BFD = 12.5 \text{ mm}}$$

$$\phi = -\frac{y'}{y_1} = -\frac{y'}{y_1} = +.026667$$

$$d' = BFD - f_{R'}$$

$$\phi = .026667/\text{mm}$$

$$\underline{d' = -25.0 \text{ mm}}$$

$$\underline{f = f_{R'} = 37.50 \text{ mm}}$$

P' is at the center of curvature of the ball. This result could also be found by inspection since both nodal points (and therefore principal planes) of the ball must be at the center of curvature.