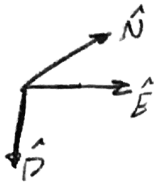

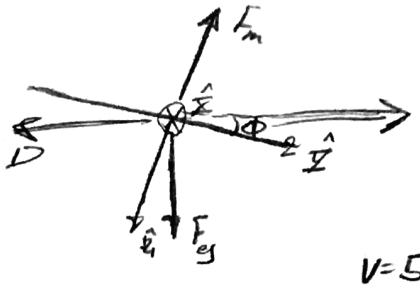

$\hat{D} = \sin\phi\,\hat{y} + \cos\phi\,\hat{z}$

$\hat{E} = \cos\phi\,\hat{Y} + \sin\phi\,\hat{z}$

$V = 5m/s\cos\phi\,\hat{Y} + 5\sin\phi\,\hat{z}$

$$\Sigma F_y = F_g\sin\phi - D_y = 0$$

$$D_y = \eta(5\cos\phi)^2$$

$$= F_g\sin\phi - 25\eta\cos^2\phi = 0$$

$$\Sigma F_z = -F_m + D_z + F_g\cos\phi = 0$$

$$D_z = \xi(25\sin^2\phi)$$

$$= -F_m + 25\xi\sin^2\phi + mg\cos\phi = 0$$

$$\boxed{\phi = 2.145^\circ}$$

$$F_m = mg\cos\phi - 25\xi\sin^2\phi$$

$$\boxed{F_m = 0.6665\ N}$$