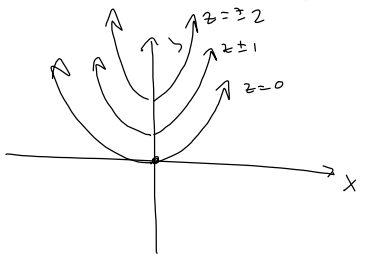
Leave space. Show work.

$9x^2 + 4z^2 - 25y = 0$



$z=0$:

$9x^2 - 25y = 0$

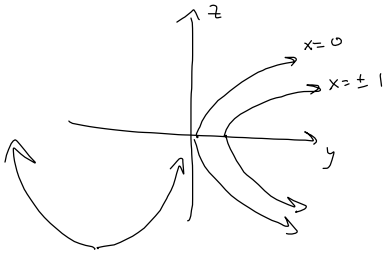
$y = \frac{9}{25}x^2$

$z = \pm 1$

$9x^2 + 4 - 25y = 0$

$25y = 9x^2 + 4$

$y = \frac{9x^2}{25} + \frac{4}{25}$



$x=0$; $4z^2 - 25y = 0$

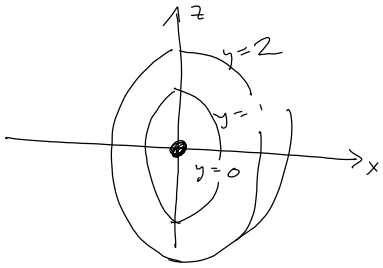
$y = \frac{4}{25}z^2$

$x = \pm 1$:

$9(1)^2 + 4z^2 - 25y = 0$

$25y = 4z^2 + 9(\pm 1)^2$

$y = \frac{4}{25}z^2 + \frac{9}{25}$



$y=0$

$9x^2 + 4z^2 - 25(0) = 0$

$9x^2 + 4z^2 = 0$

$y=1$:

$9x^2 + 4z^2 = 25(1)$

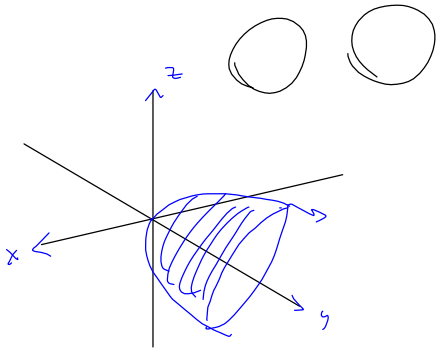
$\frac{9x^2}{25} + \frac{4z^2}{25} = 1$

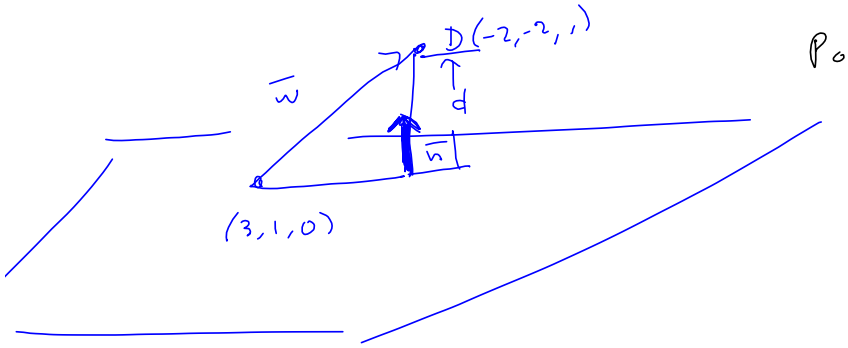
$\frac{x^2}{\left(\frac{25}{9}\right)} + \frac{z^2}{\left(\frac{25}{4}\right)} = 1$

$\frac{x^2}{\left(\frac{5}{3}\right)^2} + \frac{z^2}{\left(\frac{5}{2}\right)^2} = 1$

$y=2$:

$\frac{x^2}{\frac{50}{9}} + \frac{z^2}{\frac{50}{4}} = 1$

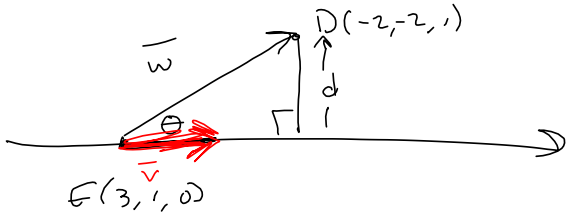




Point to plane pic

$$d = |\text{comp}_{\bar{w}}\,\bar{n}| = \frac{|\bar{w}\cdot\bar{n}|}{\|\bar{n}\|}$$

Point to line



$$\frac{d}{\|\bar{w}\|} = \sin\theta \longrightarrow$$

$$d = \|\bar{w}\|\sin\theta = \|\bar{w}\|\frac{\|\bar{w}\times\bar{v}\|}{\|\bar{w}\|\|\bar{v}\|} = \frac{\|\bar{w}\times\bar{v}\|}{\|\bar{v}\|}$$

Partial derivatives

$f_x(x,y)$ deriv in x-direction

$f_y(x,y)$ " " y- "

We want to know the slope of the tangent line in ANY given direction, say, in the direction of a unit vector $\vec{u}$
