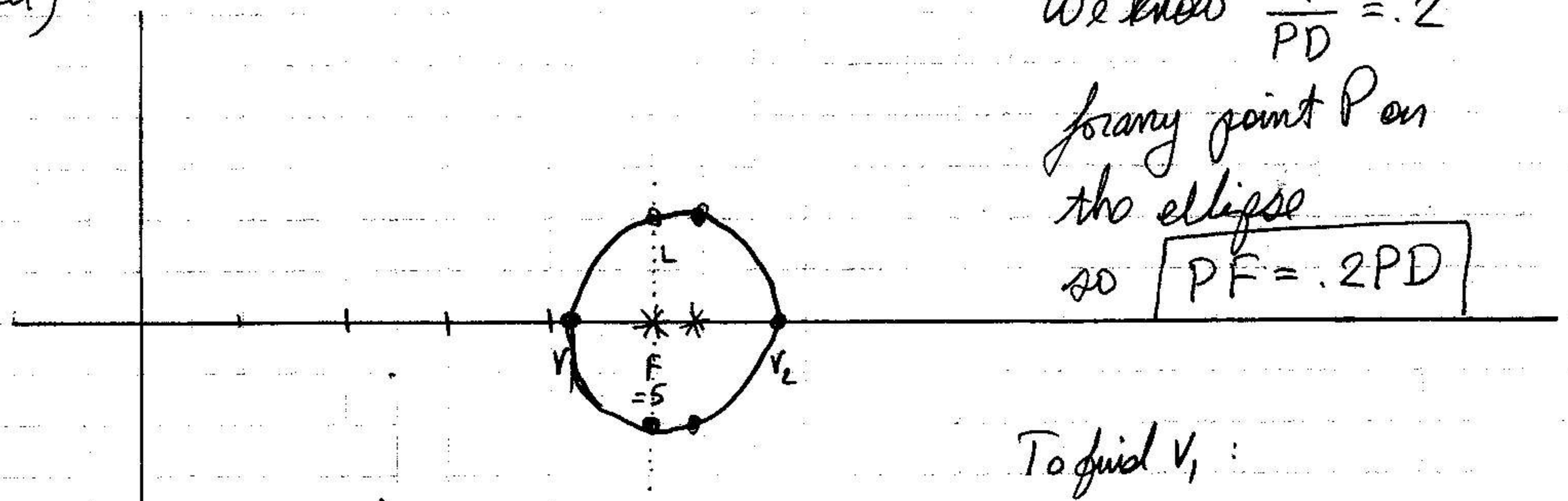
#2a)



This is almost a circle

We know $\frac{PF}{PD} = .2$ for any point P on the ellipse so $\boxed{PF = .2PD}$

To find V_1:

$5 - V_1 = .2V_1$

$25 - 5V_1 = V_1$

$\boxed{V_1 = \frac{25}{6}}$

To find V_2:

$V_2 - 5 = .2V_2$

$5V_2 - 25 = V_2$

$\boxed{V_2 = \frac{25}{4}}$

To find L:

$L = .2 \times 5$

$L = 1$

#3 $\frac{x^2}{9} + \frac{y^2}{16} = 1$ $b = 4$ $a = 3$ $c = \sqrt{16 - 9} = \pm\sqrt{7}$

center is (0,0) vertexes are (3,0) and (0,4)

Focus is at $(0, \sqrt{7})$ and $(0, -\sqrt{7})$

excentricity $= \frac{c}{b} = \frac{\sqrt{7}}{4}$

#2b)

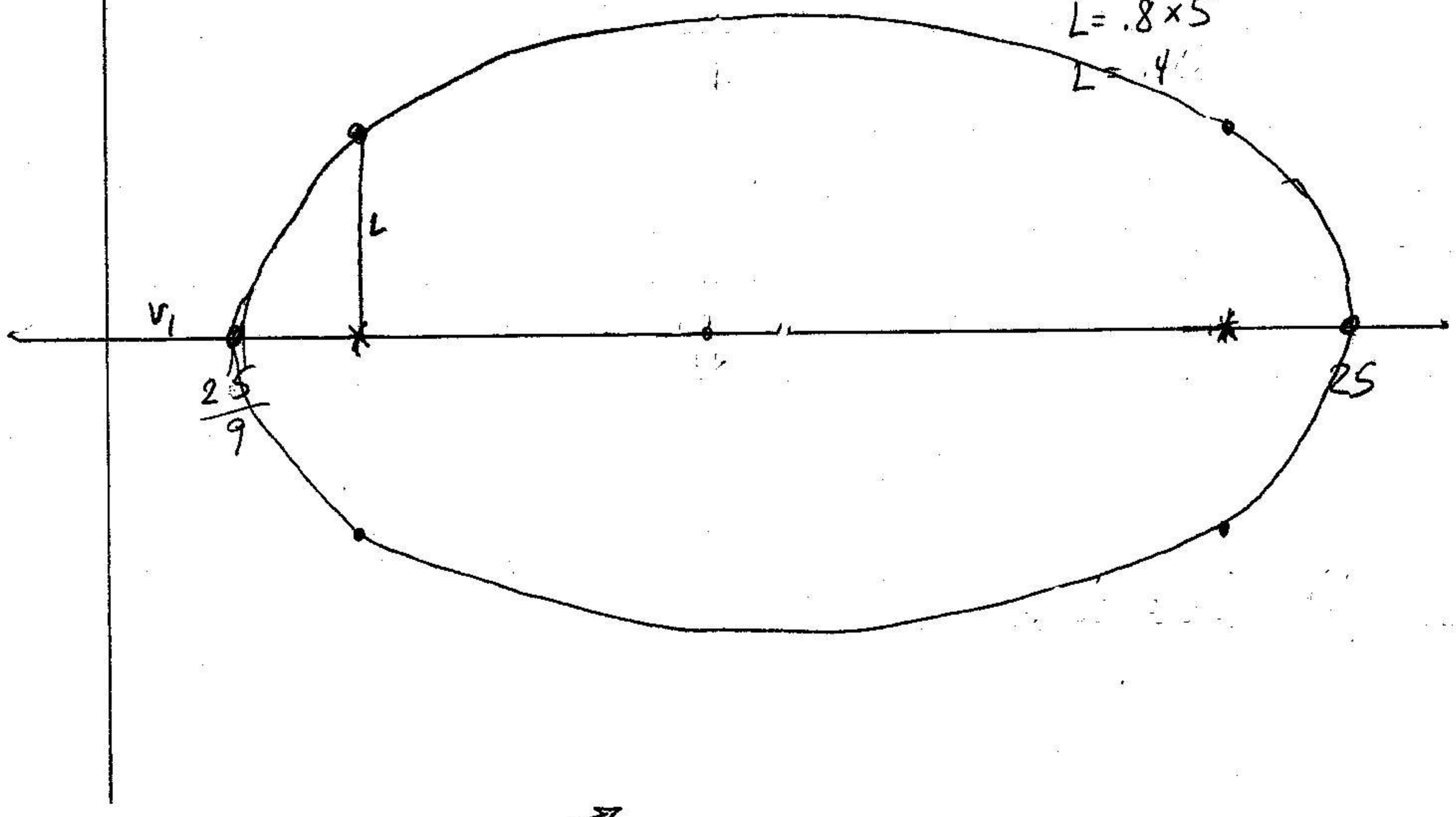
$PF = 8PD$

$5 - V_1 = .8V_1 \quad V_1 = \frac{25}{9}$

$V_2 - 5 = .8V_2 \quad V_2 = 25$

$L = .8 \times 5$

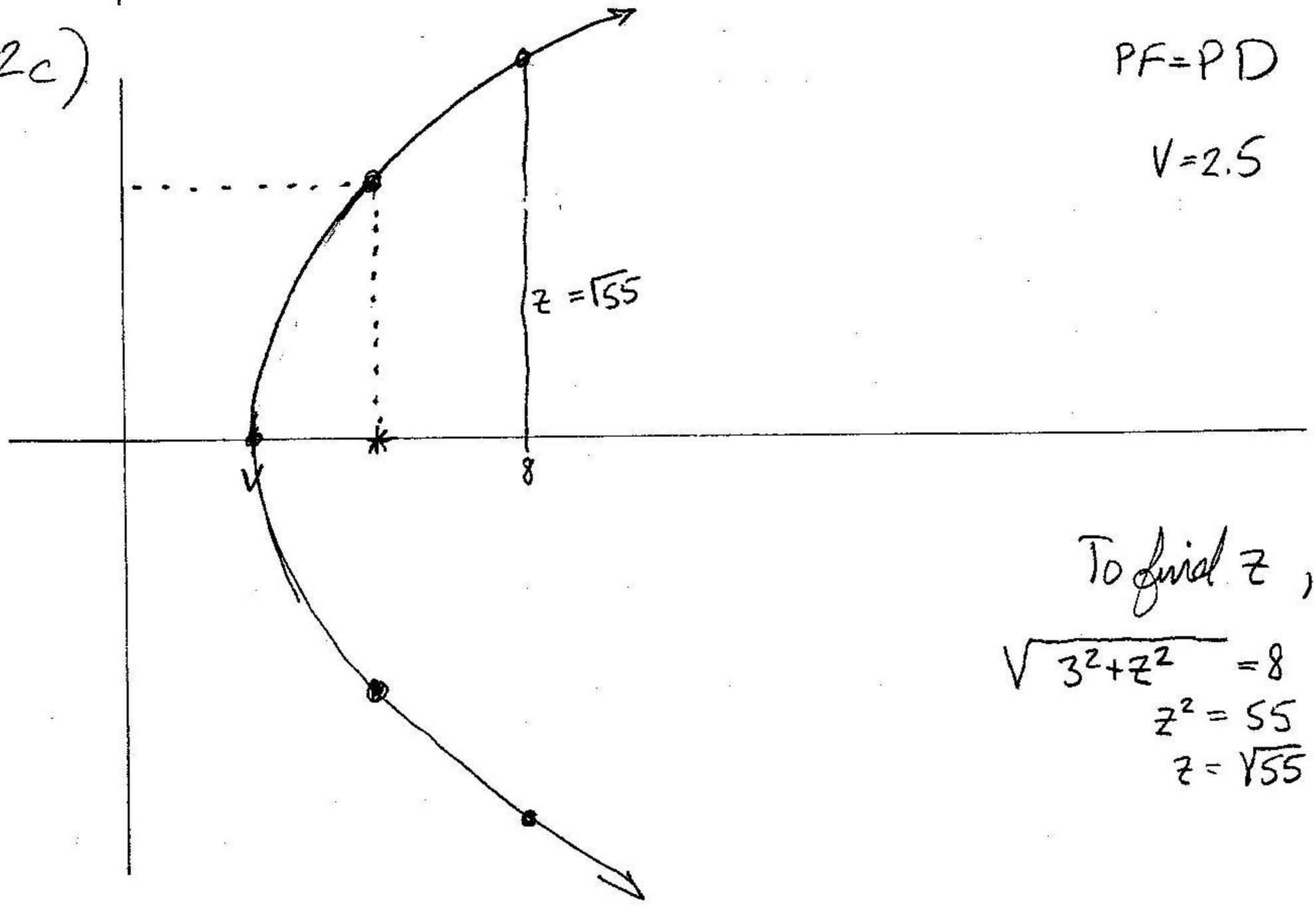
$L = 4$



#2c)

$PF = PD$

$V = 2.5$



To find z, $PF = PD$

$\sqrt{3^2 + z^2} = 8$

$z^2 = 55$

$z = \sqrt{55}$