#7) $\frac{(x-2)^2}{9} - \frac{(y-1)^2}{3} = 1$

$a = 3, \quad b = \sqrt{3}, \quad \Rightarrow c = \sqrt{12} = 2\sqrt{3}$

Center : $(2, 1)$

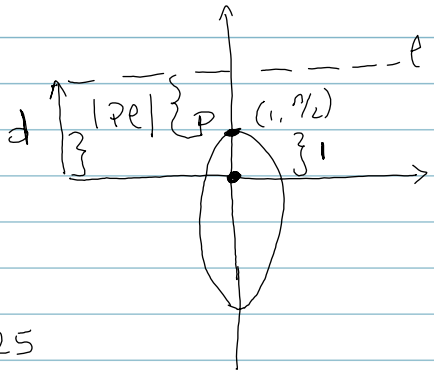
Vertices : $(h \pm a, k) = (5, 1) \quad (-1, 1)$

Foci : $(2 \pm 2\sqrt{3}, 1)$

Asymptotes : $y - 1 = \pm \frac{\sqrt{3}}{3}(x-2)$

$y = 1 \pm \frac{\sqrt{3}}{3}(x-2)$

#9) $r = \frac{ed}{1 + e\sin\theta}$



$e = \frac{|PF|}{|PF|} \Rightarrow 0.8 = \frac{1}{d-1}$

$0.8d - 0.8 = 1 \Rightarrow d = 2.25$

$r = \frac{(.8)(2.25)}{1 + (.8)\sin\theta} \cdot \frac{5}{5} \Rightarrow \boxed{r = \frac{9}{5 + 4\sin\theta}}$