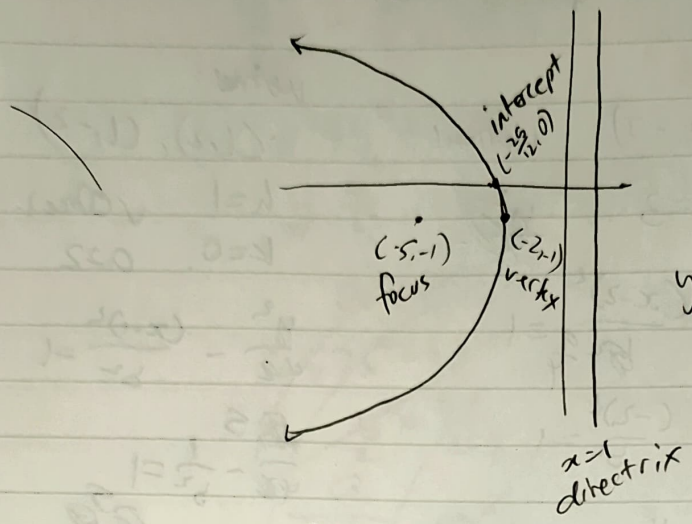
2(c) $C_1: (y+1)^2 = -12(x+2)$

hor. $h=-2, k=-1, c=-3$, focus $(-5,-1)$, directrix $x=1$



x-intercept: $1 = -12(x+2)$

$1 = -12x - 24$

$12x = -25$

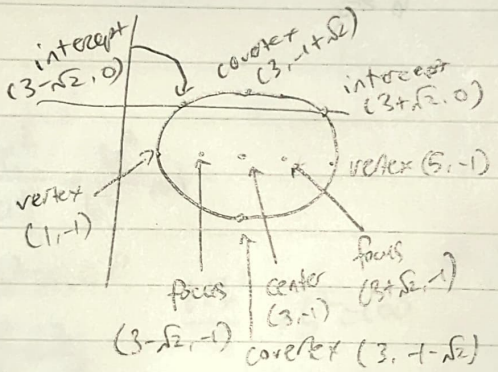
$x = -\frac{25}{12}$

y-intercept: $(y+1)^2 = -12(2)$

$(y+1)^2 = -24$ ✗

$C_2: \frac{(x-3)^2}{4} + \frac{(y+1)^2}{2} = 1$

horizontal: $h=3, k=-1, a=2, b=\sqrt{2}, c=\sqrt{4-2}=\sqrt{2}$



x-intercept: $\frac{(x-3)^2}{4} + \frac{1}{2} = 1$

$(x-3)^2 = 2$

$x-3 = \pm\sqrt{2}$

$x = 3 \pm \sqrt{2}$

y-intercept: $\frac{9}{4} + \frac{(y+1)^2}{2} = 1$

$2(y+1)^2 = -5$ ✗

$C_3: \frac{(x-2)^2}{6} - \frac{(y-1)^2}{9} = 1$

hor. $h=2, k=1, a=\sqrt{6}, b=3, c=\sqrt{6+9}=\sqrt{15}$

asymptotes: $y-1 = \pm\frac{3}{\sqrt{6}}(x-2)$

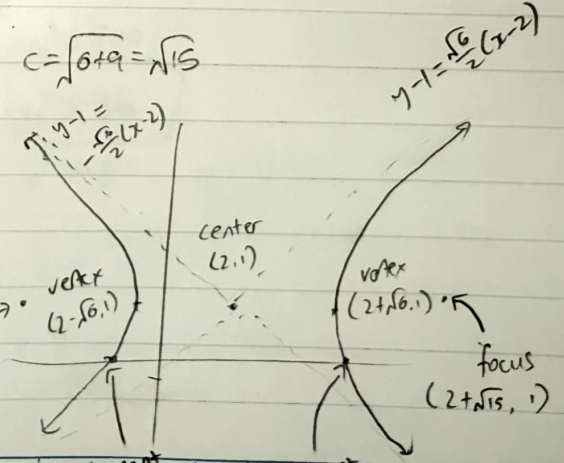
$y-1 = \pm\frac{\sqrt{6}}{2}(x-2)$

x intercept: $\frac{(x-2)^2}{6} - \frac{1}{9} = 1$

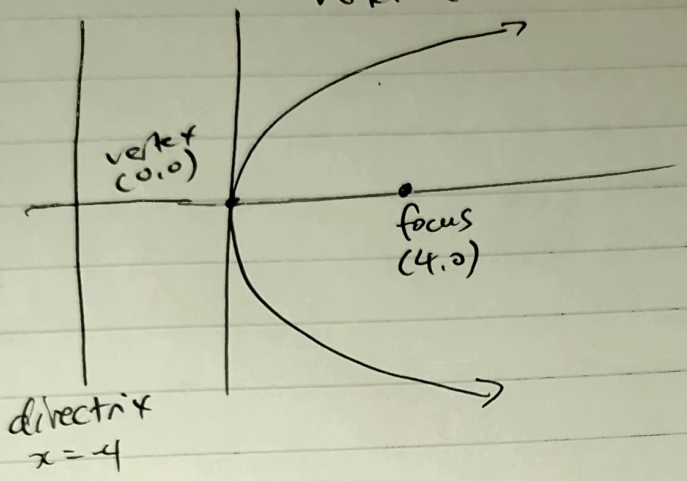
$3(x-2)^2 = 20$

$x = 2 \pm \sqrt{\frac{20}{3}}$

$x = 2 \pm \frac{\sqrt{60}}{3}$

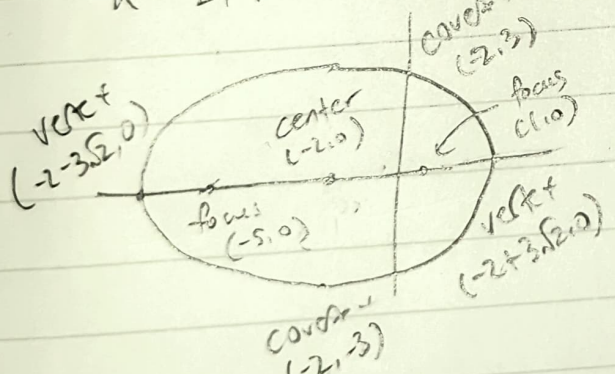


3(a) $y^2 = 16x \Rightarrow c=4$, focus $(4,0)$,
vertex $(0,0)$ directrix $x=-4$



$$\frac{(x+2)^2}{(3\sqrt{2})^2} + \frac{y^2}{3^2} = 1$$

horizontal, $a=3\sqrt{2}$, $b=3$,
$h=-2$, $k=0$, $c=\sqrt{18-9}=3$



$$\frac{(x-1)^2}{(\frac{5}{3})^2} + \frac{y^2}{(\frac{5}{4})^2} = 1$$

horizontal, $a=\frac{5}{3}$, $b=\frac{5}{4}$,
$h=1$, $k=0$, $c=\sqrt{\frac{25}{9}-\frac{25}{16}}$
$1-\frac{5}{3}=-\frac{2}{3}$
$1+\frac{5}{3}=\frac{8}{3}$
$=\sqrt{\frac{175}{144}}$
$=\frac{5\sqrt{7}}{12}$