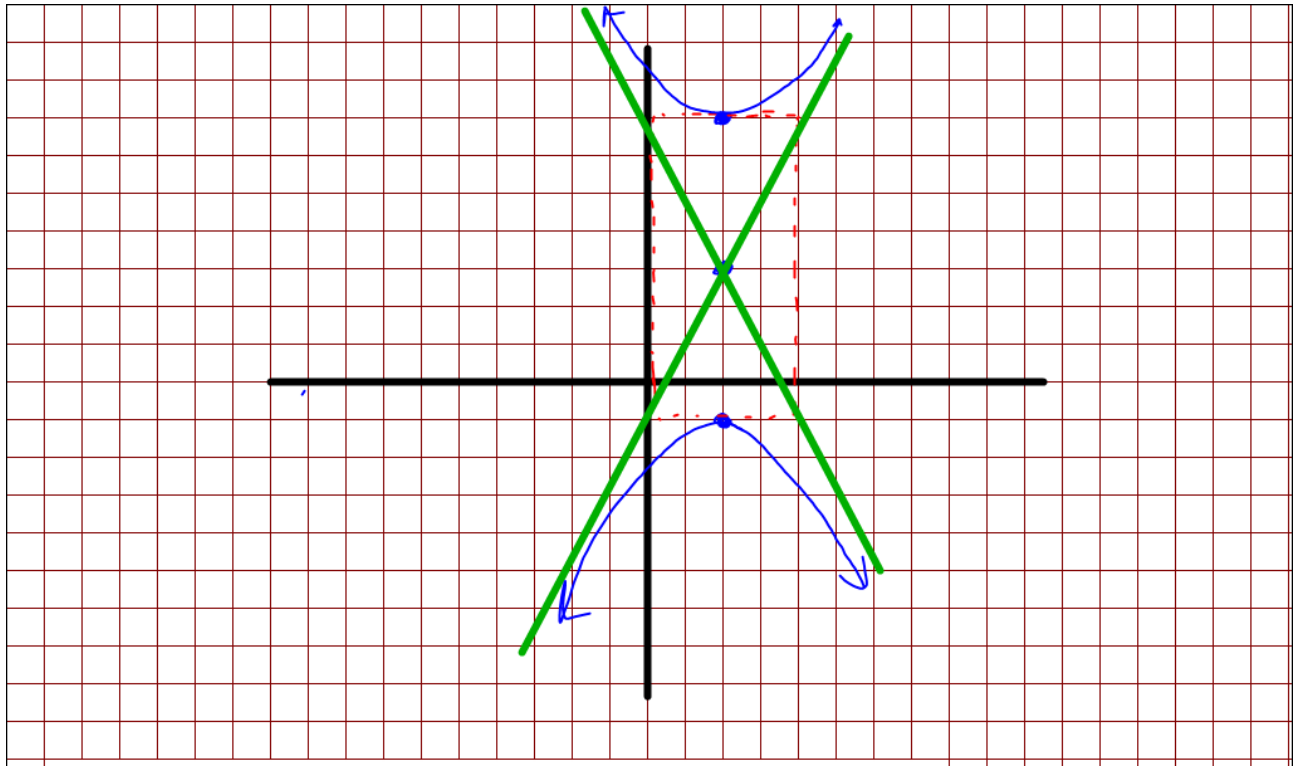
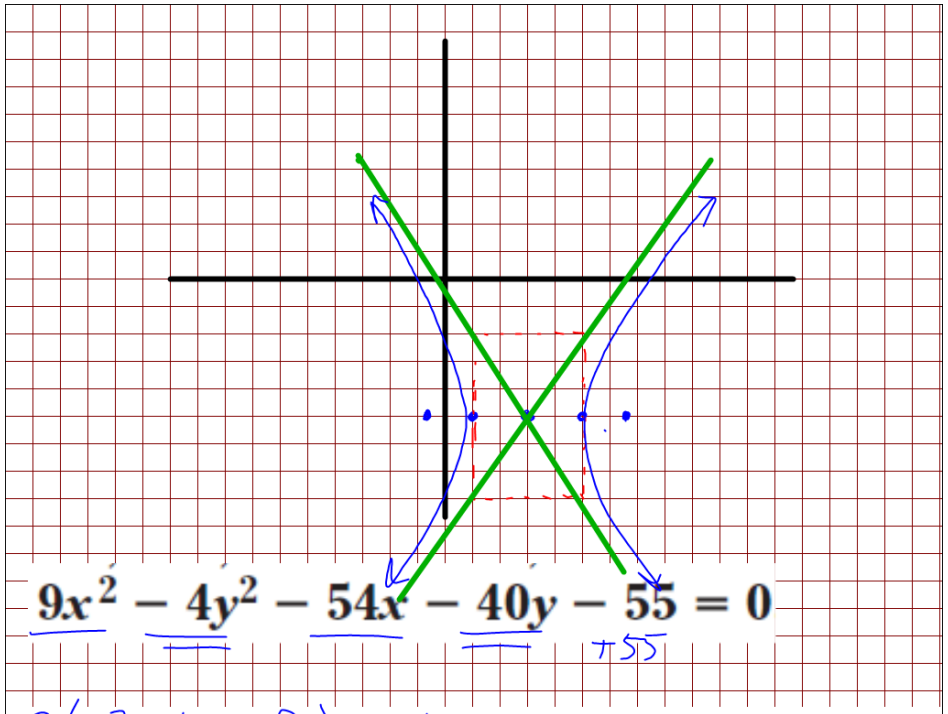


6. $\dfrac{(y-3)^2}{\underset{=a^2}{16}} - \dfrac{(x-2)^2}{\underset{=b^2}{4}} = 1$

$h = 2$
$k = 3$
$a = 4$
$b = 2$
$c = 2\sqrt{5}$

$b^2 = c^2 - a^2$
$4 = c^2 - 16$
$20 = c^2$
$\sqrt{20} = c$

center $(2, 3)$
vertices $(2, 7)(2, -1)$
foci $(2, 3 \pm 2\sqrt{5})$
asymptotes
$y - 3 = \pm\frac{4}{2}(x-2)$
$y - 3 = \pm 2(x-2)$



$$9x^2 - 4y^2 - 54x - 40y - 55 = 0$$

$+55$

$$9(x^2 - 6x + \underline{9}) - 4(y^2 + 10y + \underline{25}) = 55 + 9(9) - 4(25)$$

$$\frac{9(x-3)^2}{36} - \frac{4(y+5)^2}{36} = \frac{36}{36}$$

$$\boxed{\frac{(x-3)^2}{4} - \frac{(y+5)^2}{9} = 1}$$

$h = 3$
$k = -5$
$a = 2$
$b = 3$
$c = \sqrt{13}$

$9 = c^2 - 4$
$13 = c^2$
$\sqrt{13} = c$

center $(3, -5)$
vertices $(5, -5)$ $(1, -5)$
foci $(3 \pm \sqrt{13}, -5)$
asymptotes
$y + 5 = \pm \frac{3}{2}(x - 3)$

11. The length of the conjugate axis is 6 units, and the vertices are at (3, 4) and (3, 0).

$6 = 2b$

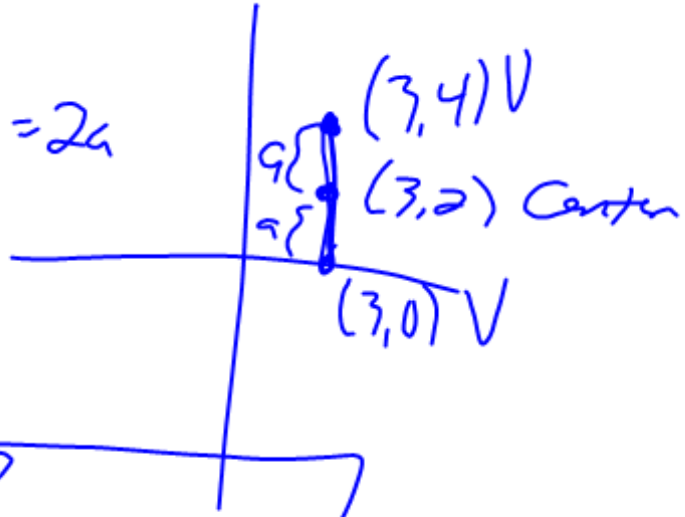
$h = 3$

$k = 2$

$a = 2$

$b = 3$

transverse $= 2a$



$$\boxed{\frac{(y-2)^2}{4} - \frac{(x-3)^2}{9} = 1}$$