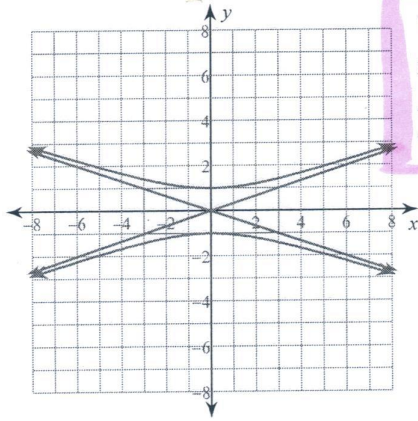


Hyperbola Assignment (Section H-3)

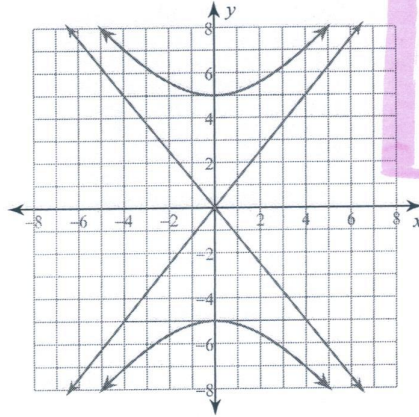
Identify the vertices, foci, length of the transverse axis, and length of the conjugate axis of each. Then sketch the graph.

1) $y^2 - \frac{x^2}{9} = 1$



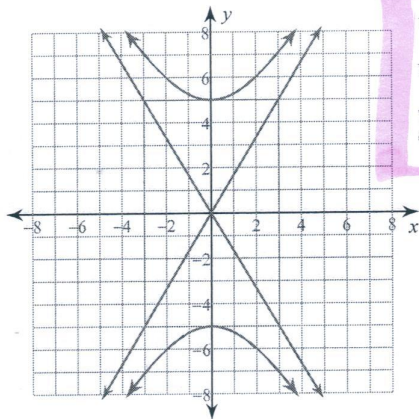
Vertices: (0, 1)
(0, -1)
Foci: (0, $\sqrt{10}$)
(0, $-\sqrt{10}$)
Transverse Axis: 2 units
Conjugate Axis: 6 units

2) $\frac{y^2}{25} - \frac{x^2}{16} = 1$



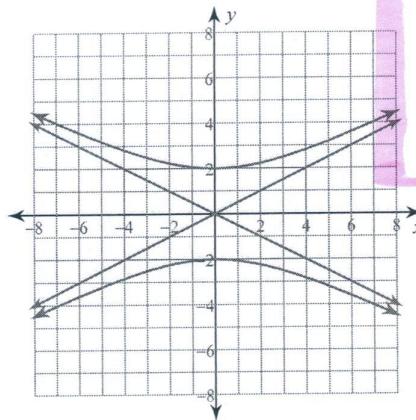
Vertices: (0, 5)
(0, -5)
Foci: (0, $\sqrt{41}$)
(0, $-\sqrt{41}$)
Transverse Axis: 10 units
Conjugate Axis: 8 units

3) $\frac{y^2}{25} - \frac{x^2}{9} = 1$



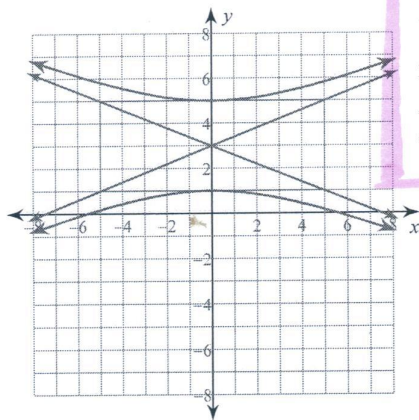
Vertices: (0, 5)
(0, -5)
Foci: (0, $\sqrt{34}$)
(0, $-\sqrt{34}$)
Transverse Axis: 10 units
Conjugate Axis: 6 units

4) $\frac{y^2}{4} - \frac{x^2}{16} = 1$



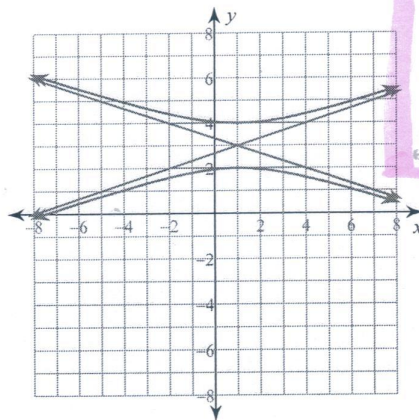
Vertices: (0, 2)
(0, -2)
Foci: (0, $2\sqrt{5}$)
(0, $-2\sqrt{5}$)
Transverse Axis: 4 units
Conjugate Axis: 8 units

$$5) \frac{(y-3)^2}{4} - \frac{x^2}{25} = 1$$



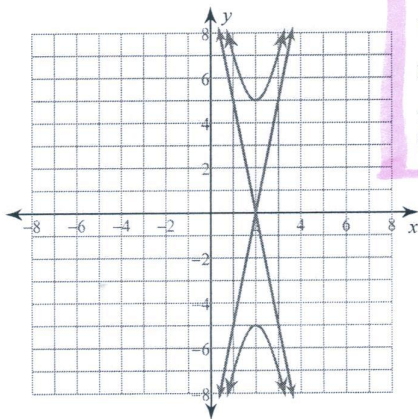
Vertices: (0, 5)
(0, 1)
Foci: $(0, 3 + \sqrt{29})$
 $(0, 3 - \sqrt{29})$
Transverse Axis: 4 units
Conjugate Axis: 10 units

$$6) (y-3)^2 - \frac{(x-1)^2}{9} = 1$$



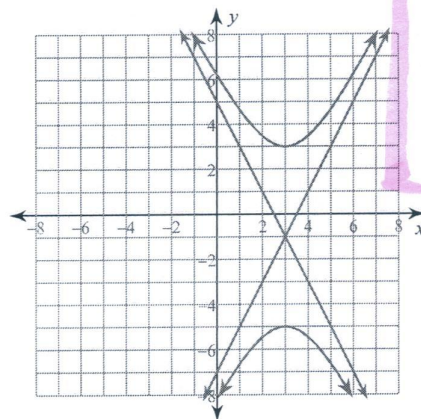
Vertices: (1, 4)
(1, 2)
Foci: $(1, 3 + \sqrt{10})$
 $(1, 3 - \sqrt{10})$
Transverse Axis: 2 units
Conjugate Axis: 6 units

$$7) \frac{y^2}{25} - (x-2)^2 = 1$$



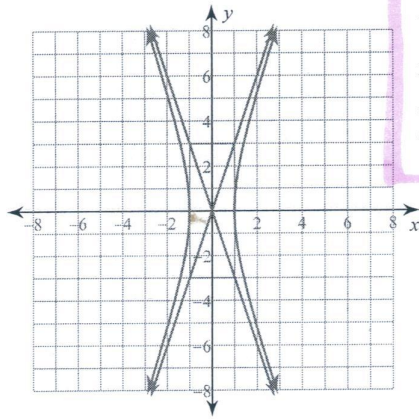
Vertices: (2, 5)
(2, -5)
Foci: $(2, \sqrt{26})$
 $(2, -\sqrt{26})$
Transverse Axis: 10 units
Conjugate Axis: 2 units

$$8) \frac{(y+1)^2}{16} - \frac{(x-3)^2}{4} = 1$$



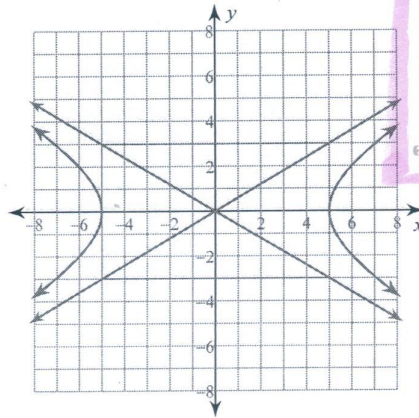
Vertices: (3, 3)
(3, -5)
Foci: $(3, -1 + 2\sqrt{5})$
 $(3, -1 - 2\sqrt{5})$
Transverse Axis: 8 units
Conjugate Axis: 4 units

$$9) x^2 - \frac{y^2}{9} = 1$$



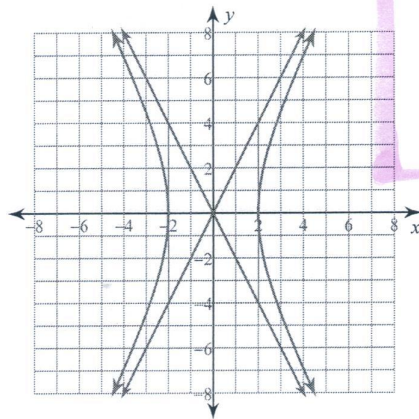
Vertices: $(1, 0)$
 $(-1, 0)$
 Foci: $(\sqrt{10}, 0)$
 $(-\sqrt{10}, 0)$
 Transverse Axis: 2 units
 Conjugate Axis: 6 units

$$10) \frac{x^2}{25} - \frac{y^2}{9} = 1$$



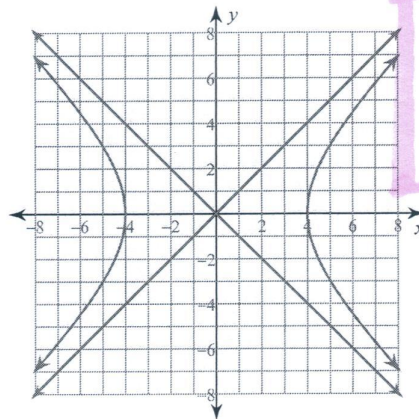
Vertices: $(5, 0)$
 $(-5, 0)$
 Foci: $(\sqrt{34}, 0)$
 $(-\sqrt{34}, 0)$
 Transverse Axis: 10 units
 Conjugate Axis: 6 units

$$11) \frac{x^2}{4} - \frac{y^2}{16} = 1$$



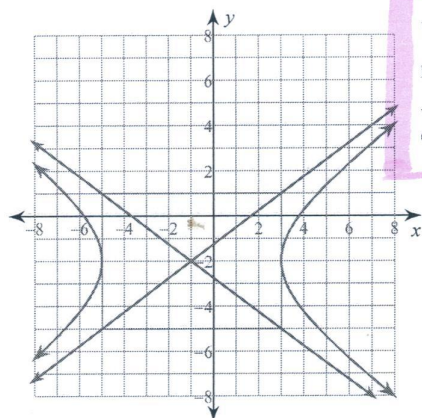
Vertices: $(2, 0)$
 $(-2, 0)$
 Foci: $(2\sqrt{5}, 0)$
 $(-2\sqrt{5}, 0)$
 Transverse Axis: 4 units
 Conjugate Axis: 8 units

$$12) \frac{x^2}{16} - \frac{y^2}{16} = 1$$



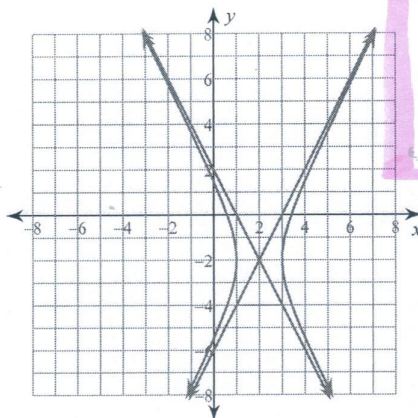
Vertices: $(4, 0)$
 $(-4, 0)$
 Foci: $(4\sqrt{2}, 0)$
 $(-4\sqrt{2}, 0)$
 Transverse Axis: 8 units
 Conjugate Axis: 8 units

$$13) \frac{(x+1)^2}{16} - \frac{(y+2)^2}{9} = 1$$



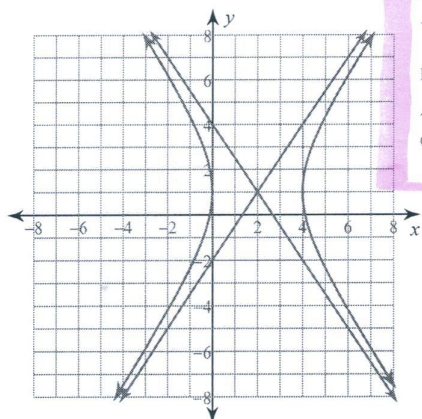
Vertices: (3, -2)
(-5, -2)
Foci: (4, -2)
(-6, -2)
Transverse Axis: 8 units
Conjugate Axis: 6 units

$$14) (x-2)^2 - \frac{(y+2)^2}{4} = 1$$



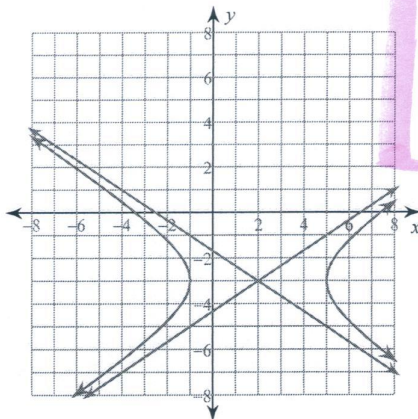
Vertices: (3, -2)
(1, -2)
Foci: (2 + sqrt(5), -2)
(2 - sqrt(5), -2)
Transverse Axis: 2 units
Conjugate Axis: 4 units

$$15) \frac{(x-2)^2}{4} - \frac{(y-1)^2}{9} = 1$$



Vertices: (4, 1)
(0, 1)
Foci: (2 + sqrt(13), 1)
(2 - sqrt(13), 1)
Transverse Axis: 4 units
Conjugate Axis: 6 units

$$16) \frac{(x-2)^2}{9} - \frac{(y+3)^2}{4} = 1$$



Vertices: (5, -3)
(-1, -3)
Foci: (2 + sqrt(13), -3)
(2 - sqrt(13), -3)
Transverse Axis: 6 units
Conjugate Axis: 4 units