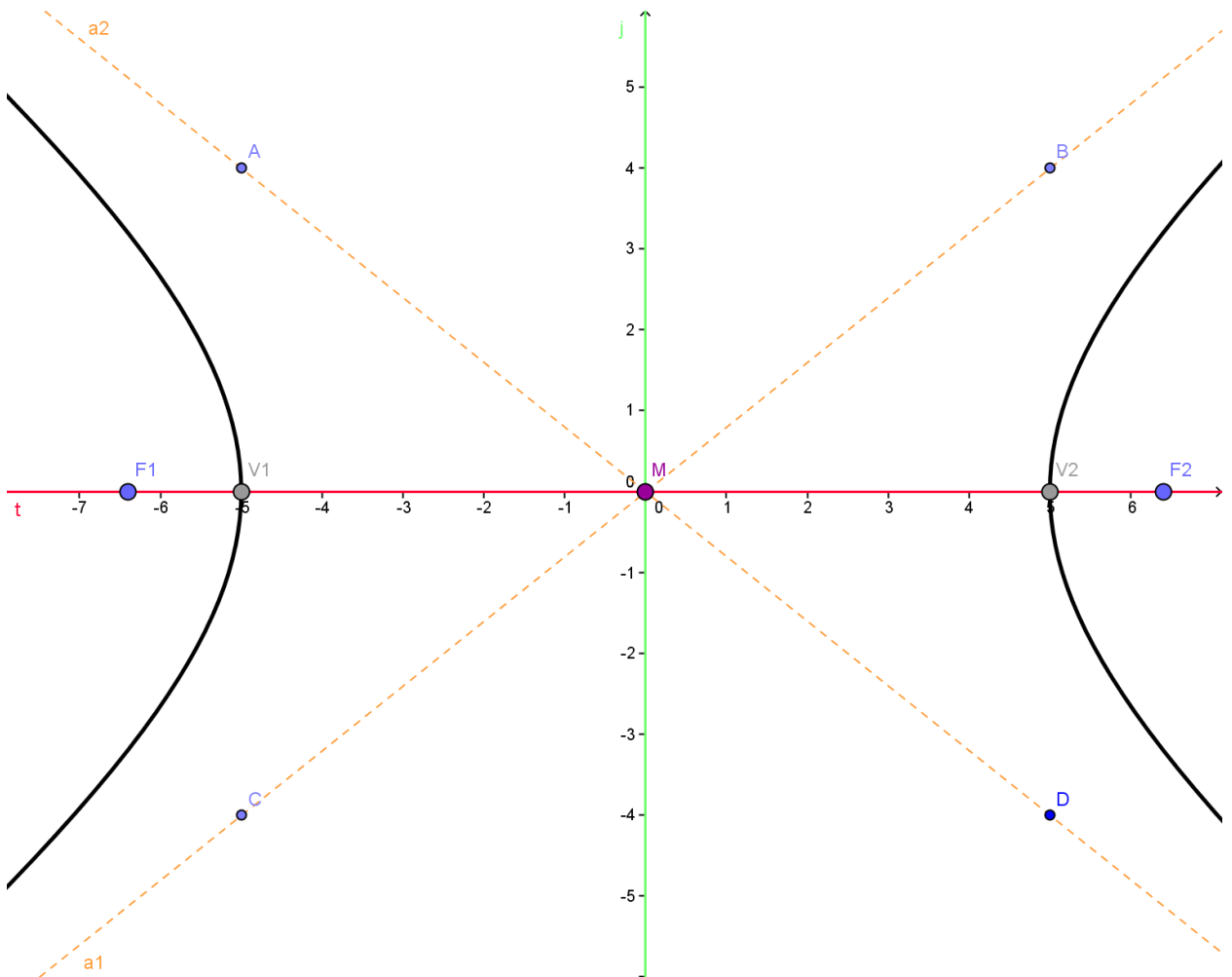


DIRECTIONS: Identify the center, direction of the transverse axis, vertices, foci, and slopes of asymptotes for the following hyperbolas. Use the back to graph the hyperbola.

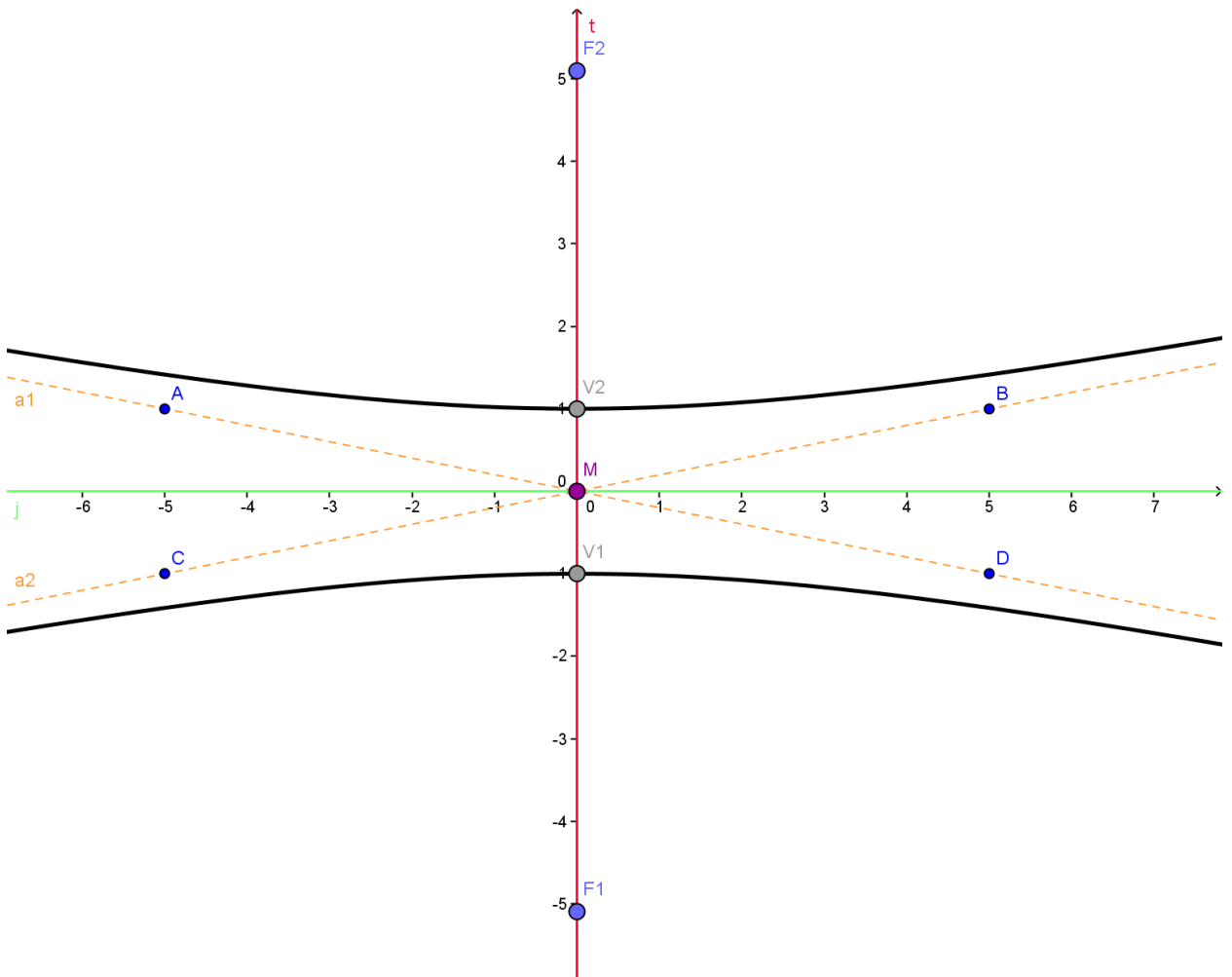
1. $\frac{x^2}{25} - \frac{y^2}{16} = 1$

Center: $(0, 0)$
 Transverse Axis: Horizontal
 Vertices: $(5, 0)$ & $(-5, 0)$
 Foci: $(\sqrt{41}, 0)$ & $(-\sqrt{41}, 0)$
 Slopes of Asymptotes: $\pm \frac{4}{5}$



2. $x^2 - 25y^2 + 25 = 0$ (Work for this problem is at BowerPower.net)

Center: $(0, 0)$
 Transverse Axis: Vertical
 Vertices: $(0, 1)$ & $(0, -1)$
 Foci: $(0, \sqrt{26})$ & $(0, -\sqrt{26})$
 Slopes of Asymptotes: $\pm \frac{1}{5}$

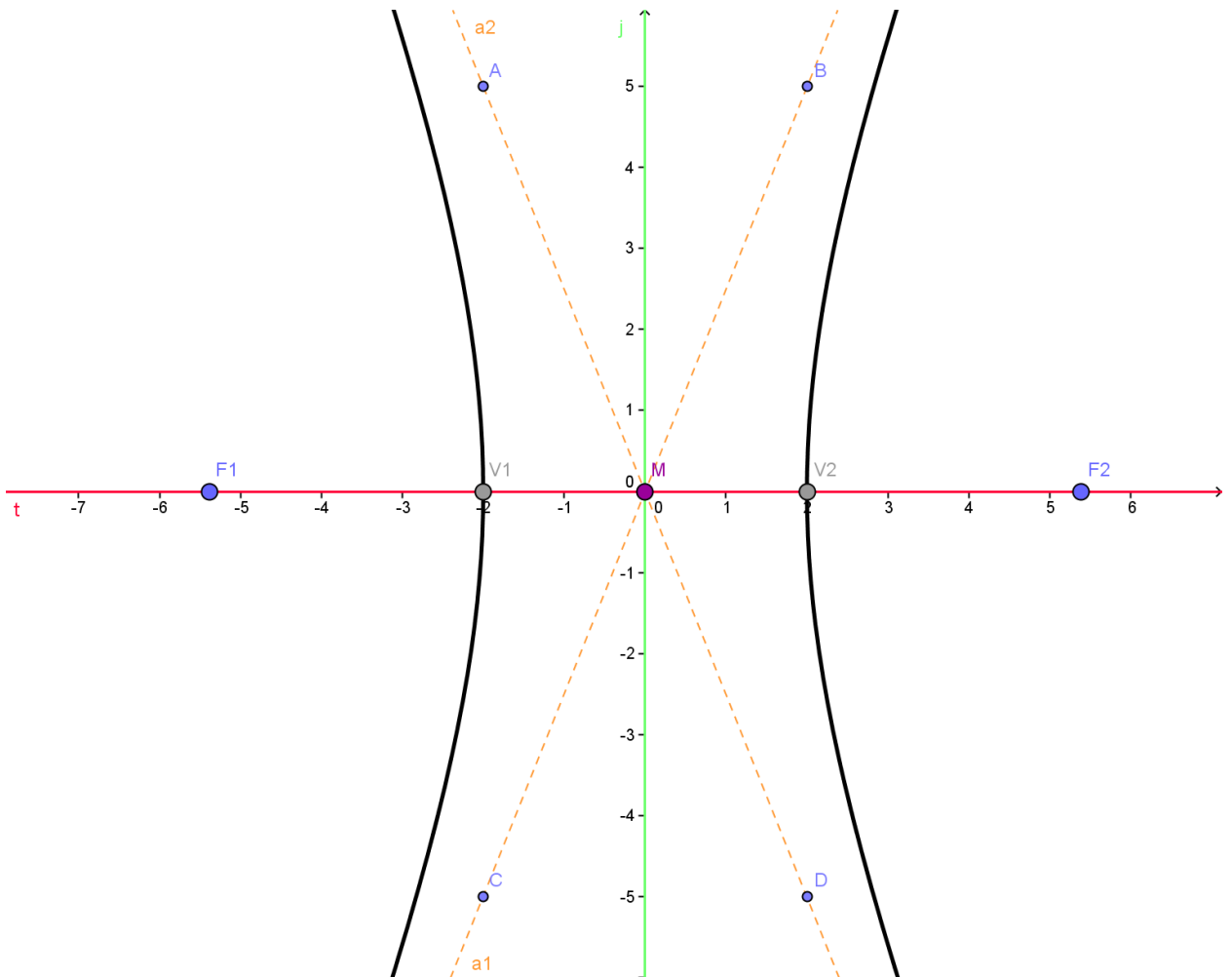


$$3. \quad 25x^2 - 4y^2 = 100$$

$$\frac{25x^2 - 4y^2 = 100}{100}$$

$$\frac{x^2}{4} - \frac{y^2}{25} = 1$$

Center: $(0, 0)$
 Transverse Axis: Horizontal
 Vertices: $(-2, 0)$ & $(2, 0)$
 Foci: $(\sqrt{29}, 0)$ & $(-\sqrt{29}, 0)$
 Slopes of Asymptotes: $\pm \frac{5}{2}$



4. $x^2 = 9y^2 - 81$

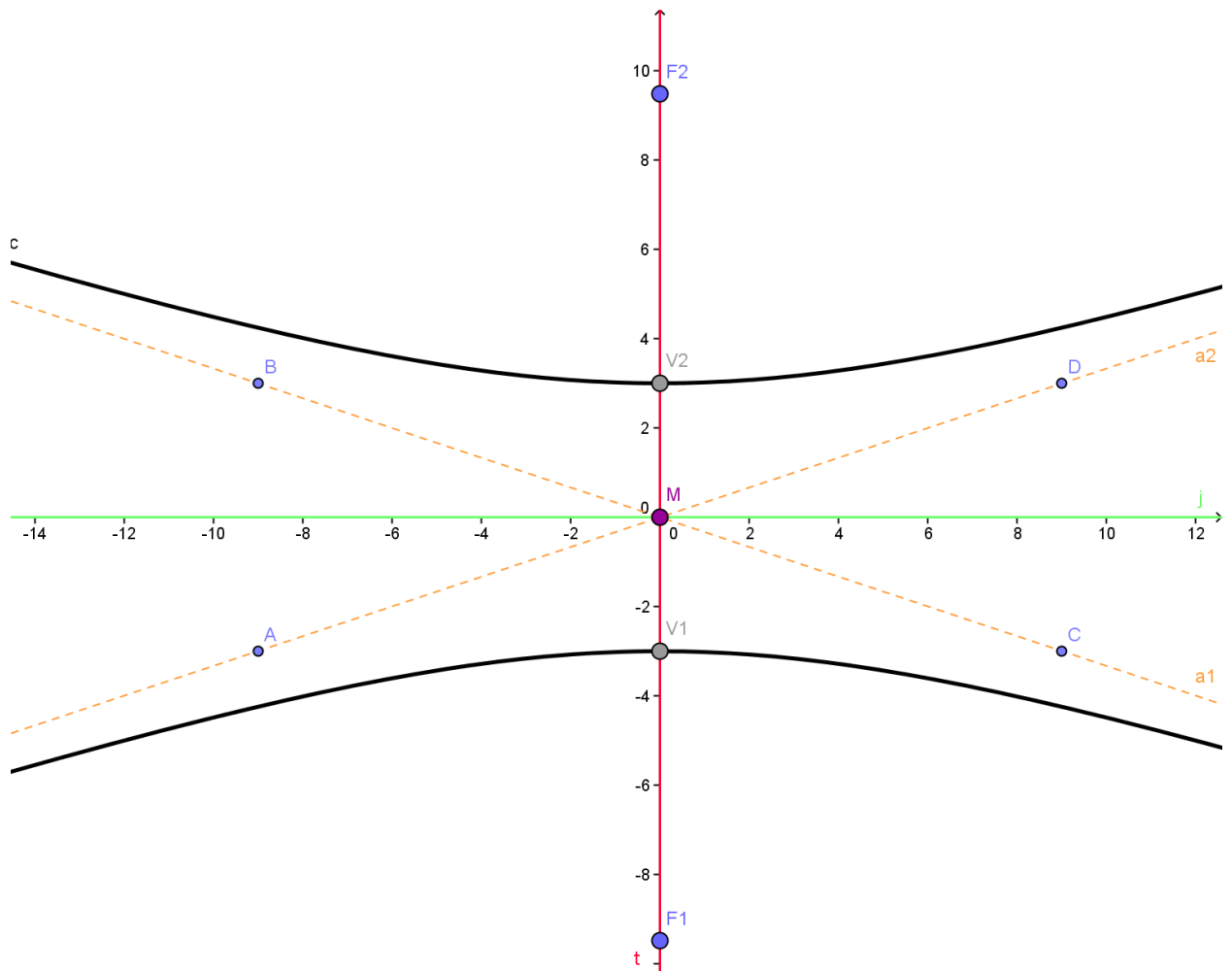
$x^2 - 9y^2 = -81$

$\frac{x^2 - 9y^2 = -81}{-81}$

$\frac{x^2}{-81} + \frac{y^2}{9} = 1$

$\frac{y^2}{9} - \frac{x^2}{81} = 1$

Center: $(0, 0)$
 Transverse Axis: Vertical
 Vertices: $(0, 3)$ & $(0, -3)$
 Foci: $(0, 3\sqrt{10})$ & $(0, -3\sqrt{10})$
 Slopes of Asymptotes: $\pm \frac{3}{9} = \pm \frac{1}{3}$

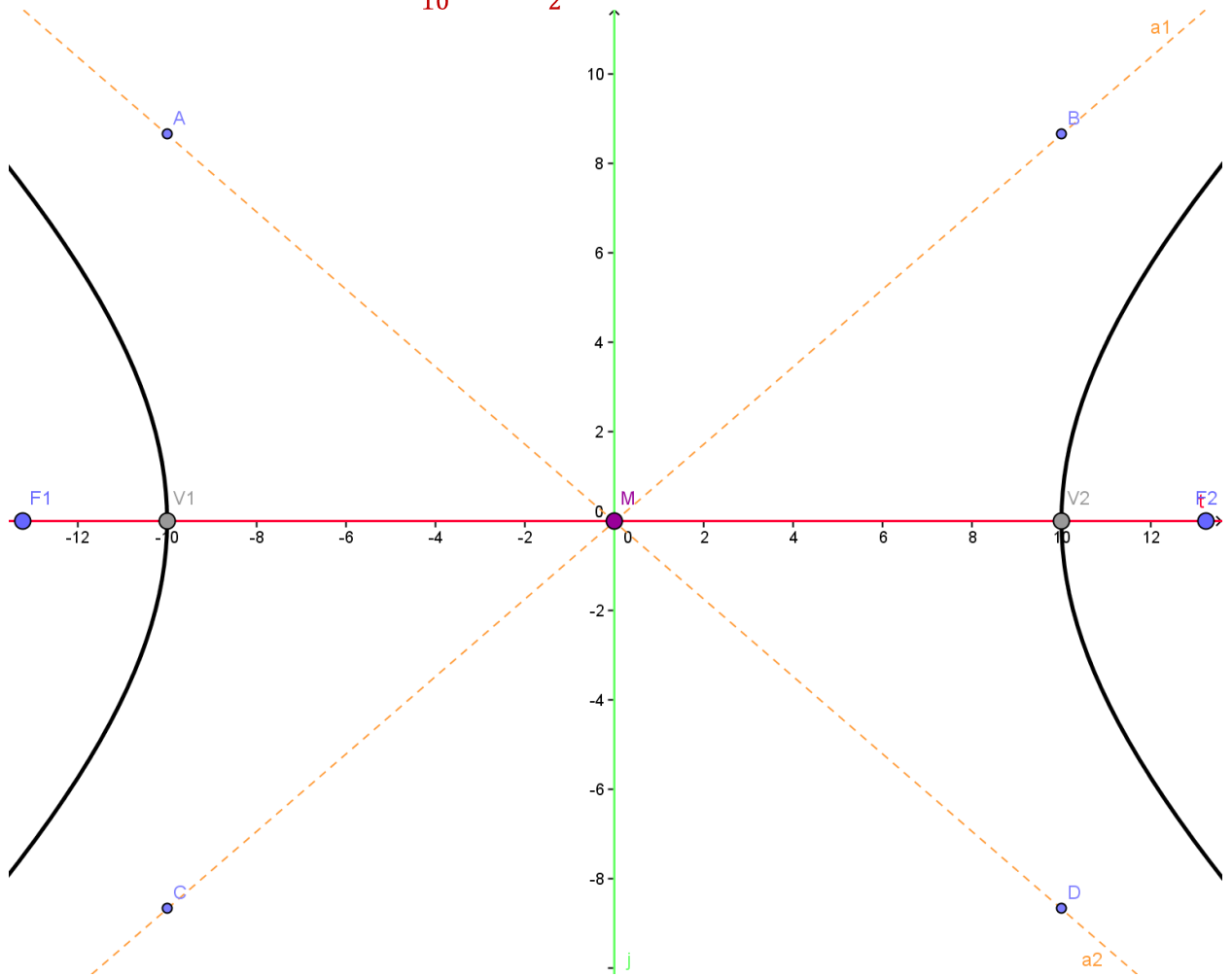


$$5. \quad 75x^2 - 100y^2 = 7500$$

$$\frac{75x^2 - 100y^2 = 7500}{7500}$$

$$\frac{x^2}{100} - \frac{y^2}{75} = 1$$

Center: $(0, 0)$
 Transverse Axis: Horizontal
 Vertices: $(10, 0)$ & $(-10, 0)$
 Foci: $(5\sqrt{7}, 0)$ & $(-5\sqrt{7}, 0)$
 Slopes of Asymptotes: $\pm \frac{5\sqrt{3}}{10} = \pm \frac{\sqrt{3}}{2}$



6. $4x^2 - y^2 + 1 = 0$

$4x^2 - y^2 = -1$ $-4x^2 + y^2 = 1$ $y^2 - 4x^2 = 1$

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

- Center: $(0, 0)$
- Transverse Axis: Vertical
- Vertices: $(0, 1)$ & $(0, -1)$
- Foci: $(0, \frac{\sqrt{5}}{2})$ & $(0, -\frac{\sqrt{5}}{2})$
- Slopes of Asymptotes: $\pm \frac{1}{1/2} = \pm 2$

