The hyperbola \( \left( \frac{x}{2} \right)^2 - \left( \frac{y}{3} \right)^2 = 1 \) is pictured below. Its asymptotes are \( y = \pm \frac{3}{2} x \).

Its two foci are positioned symmetrically on the transverse axis.

For any point on the hyperbola, the difference of distances to the foci is fixed.

Using this property, we determine the foci positions.

For \((2, 0)\), the difference of distances is \((2 + f) - (f - 2) = 4\).

For \((4, 3\sqrt{3})\), the difference of distances is \(\sqrt{(f + 4)^2 + 27} - \sqrt{(f - 4)^2 + 27}\).

So we have

\[
\sqrt{(f + 4)^2 + 27} = 4 + \sqrt{(f - 4)^2 + 27} \\
(f + 4)^2 + 27 = 16 + 8\sqrt{(f - 4)^2 + 27} + (f - 4)^2 + 27 \\
16f = 16 + 8\sqrt{(f - 4)^2 + 27} \\
2f - 2 = \sqrt{(f - 4)^2 + 27} \\
4f^2 - 8f + 4 = f^2 - 8f + 43 \\
f^2 = 13 \\
f = \sqrt{13}
\]

For a general hyperbola centered at the origin, \( \left( \frac{x}{a} \right)^2 - \left( \frac{y}{b} \right)^2 = 1 \), the foci marks are \( f = \pm \sqrt{a^2 + b^2} \).