

Phantom Graph Duals Ellipse & Hyperbolas

It turns out that the phantom graph of an ellipse with equation $\frac{y^2}{b^2} + \frac{x^2}{a^2} = 1$ is the hyperbola with equation $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$. Similarly the phantom graph with equation $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$ is just the ellipse with equation $\frac{y^2}{b^2} + \frac{x^2}{a^2} = 1$. Hence I am calling these 'duals'.