In Exercises 1–9 find the orthogonal trajectories of each given family of curves. In each case sketch several members of the family and several of the orthogonal trajectories on the same set of axes.

1. \( y = cx^2 \).
2. \( y^2 = cx \).
3. \( cx^2 + y^2 = 1 \).
4. \( y = e^{xy} \).
5. \( y = x - 1 + ce^{-x} \).
6. \( y = \frac{cx^2}{x + 1} \).
7. \( x^2 + y^2 = cx^3 \).
8. \( x^2 = 2y - 1 + ce^{-2y} \).
9. \( x = \frac{y^2}{4} + \frac{c}{y^2} \).
10. \( x^2 - y^2 = cx^3 \).

1. \( x^2 + 3y^2 = C \)
3. \( x^2 + y^2 - \ln y^2 = C \)
5. \( x = y - 1 + c e^{-y} \)
7. \( x^2y + y^3 = C \)
9. \( y^2 = 2x - 1 + c e^{-2x} \)