Open up the program PredatorPrey. We are interested in studying the following predator-prey system:

\[
\frac{dR}{dt} = 2R - 1.2RF \\
\frac{dy}{dt} = -F + 0.9RF
\]

where \( R \) is population of rabbits and \( F \) is the population of foxes. Set the sliders to define \( a = 2, b = 1.2, c = 1, d = 0.9 \).

1. On the left graph, click on approximately \((3, 1)\). Note that this corresponds to the initial condition \( R(0) = 3 \) and \( F(0) = 1 \).
   a. Sketch below the curves that appear in the right graph (note that the green curve corresponds to \( R \) and the red curve corresponds to the \( F \)). Relate the curves to the physical interaction between the predator and prey populations.

b. What is the left graph plotting? We call this the *phase plane*. How does the curve on the left relate to what you see in the right graph? Can you draw arrows on the curve to represent time?
2. Click on other points in the $R$-$F$ plane. Can you find any equilibrium points?

3. Suppose you set the initial condition to $R_0 = 2, F_0 = 0$. What would you expect to see? Relate this to what is happening physically.

4. Suppose you set the initial condition to $R_0 = 0, F_0 = 2$. What would you expect to see? Relate this to what is happening physically.