2. The v-nullcline is the line $y = 1 - x$. The h-nullcline is the curve $x = y^2$. The equilibrium points are $(\frac{1}{2} + \frac{\sqrt{5}}{2}, -\frac{1}{2} + \frac{\sqrt{5}}{2})$ and $(\frac{1}{2} - \frac{\sqrt{5}}{2}, -\frac{1}{2} + \frac{\sqrt{5}}{2})$. Arrows move to the right when $y < 1 - x$, and arrows move to the left when $y > 1 - x$. Arrows move up when $x > y^2$, and arrows move down when $x < y^2$. The second equilibrium point is stable, and the second equilibrium point is unstable.

4. The v-nullcline is the line $y = -x$. The h-nullcline is the line $y = -x$. The equilibrium points are all points on the line $y = -x$. Arrows move to the right when $y > -x$, and arrows move left when $y < -x$. Arrows move up when $y = -x$, and arrows move down when $y = -x$. All equilibrium points are unstable.

6. The v-nullcline is the x-axis. The h-nullcline is the line $y = -\frac{5}{3}x$. The equilibrium point is $(0, 0)$. Arrows move right when $y > 0$, and arrows move left when $y < 0$. Arrows move up when $y > -\frac{5}{3}x$, and arrows move down when $y < -\frac{5}{3}x$. The equilibrium point is unstable.

8. The v-nullcline is the line $y = -\frac{1}{2}x$. The h-nullcline is the y-axis. The equilibrium point is $(0, 0)$. Arrows move right when $y > -\frac{1}{2}x$, and arrows move left when $y < -\frac{1}{2}x$. Arrows move up when $x > 0$, and arrows move down when $x < 0$. The equilibrium point is unstable.

14. The v-nullclines are the y-axis and the line $y = 4 - 2x$. The h-nullclines are the x-axis and the line $y = 2 - \frac{1}{2}x$. The equilibrium points are $(0, 0), (2, 0), (0, 2), (\frac{4}{3}, \frac{2}{3})$. Arrows move to the right when $x > 0$ and $4 - 2x > y$, and arrows move left when $x > 0$ and $4 - 2x < y$. Arrows move up when $y > 0$ and $2 - \frac{1}{2}x > y$, and arrows move down when $y > 0$ and $2 - \frac{1}{2}x < y$. The first 3 equilibrium points are unstable, and the last one is stable. Under any initial conditions, as time goes to infinity, you will end up with $\frac{4}{3}$ of each species, so coexistence is possible.

16. The v-nullclines are the y-axis and the line $y = 2 - \frac{1}{4}x$. The h-nullclines are the x-axis and the line $y = 1 - 2x$. The equilibrium points are $(0, 0), (0, 1), (4, 0)$. Arrows move right when $x > 0$ and $2 - \frac{1}{4}x > y$, and arrows move left when $x > 0$ and $2 - \frac{1}{4}x < y$. Arrows move up when $y > 0$ and $y < 1 - 2x$, and arrows move down when $y > 0$ and $1 - 2x < y$. The first 2 equilibrium points are unstable and the last one is stable. Coexistence is not possible, species x will always outlast species y.