Chase and Collision Problem Steps

- Make a list of givens for each object $\begin{cases} x_0 = \\ v_0 = \\ a = \end{cases}$

- Choose the left-most object to be at the origin so that it will have $x_0 = 0$; and the other will have x_0 = distance between the two objects.

- From the problem, figure out each one's v_0 and accel.

- Write each one's position equation.

$$x = x_0 + v_0 t + \frac{1}{2} a t^2$$

- Set them equal and get all terms to one side.

- Use your favorite quadratic formula solver to find the times.

- If one time is positive and the other negative, choose the positive one.

- If they are both positive, choose the shorter one.

- Plug the time back into either object's position equation to find where they meet.