**Driving to the Movies**

**Learning Objectives:**

* Understand the connections between proportional relationships, lines, and linear equations.
* Solve real-world and mathematical problems leading to two linear equations in two variables.
* Make sense of problems and persevere in solving them.
* Model with mathematics

**Scenario:**

Sam and Sally are driving separate cars and racing to make it in time to the movie theater before tickets run out for the midnight premiere. Sam is on the freeway and starts driving at 60 mph, but has to slow down and after 2 hours is only driving 20 mph. Sally on the other hand had to take street roads which was only 30 mph, but got to increase her speed 5 miles every hour. Theoretically Sam if was slowing down at a constant rate and Sally was speeding up at a constant rate in the same direction, at what speed and hour would they meet each other?

Sketch of Model: (include intersection point)

List Equations:

Sam:  
Sally:

Extension:

•The initial speed of the cars could be altered

•How would Sally’s speed increasing at a rate of 10 mph change the intersection point?

•Add another car and find the intersection of three points by using just the graph on the ActivBoard or Algebraically