1. You are taking a walk on a local bridge. You look down and wonder how far above the water the bridge is. To test this out you drop a rock and hear it hit the water 13.4s later. What is the height of the bridge.
   \[ y = 880\text{m} \]

2. A speed boat is initially moving at 46mph, the driver notices choppy water up ahead and decelerates at a constant rate of 3m/s\(^2\) over a period of 6.3s. Find the displacement over the period of deceleration in meters. (1in=2.54cm)
   \[ x = 70\text{m} \]

3. In 2012, the Jamaican men’s 4x100 relay team broke the world record anchored by Usain Bolt. The splits of each runner were 10.28s, 9.07s, 9.09s, and 8.70s. Find the speed of Usain Bolt and the average speed of the team. (assume each runner was at full speed at the handoff and ran exactly 100m)
   \[ V_{\text{bolt}} = 11.5 \text{ m/s} \]
   \[ V_{\text{avg}} = 10.8 \text{ m/s} \]

4. An airplane is set to take off on a runway that is 2km long. To get the proper lift off the plane must be traveling at a speed of 270km/hr. Find the speed in m/s and determine the minimum acceleration the plane must achieve to take off on the runway. (assume constant acceleration).
   \[ a = 1.41\text{m/s}^2 \]

5. Connor is playing outside with his younger cousin Brody. Brody wants to race Connor, but he needs a head start to have a chance at winning. Connor decides to run to a swing set 300ft away and gives Brody a 75ft head start. If Brody travels at a constant rate of 6.5mph and Connor accelerates at a speed of 2.2 mph/s until he reaches full speed 4.2s later. Who wins the race?
   Brody wins (\(t_{\text{brody}} = 23.6\text{s}, \ t_{\text{connor}} = 24.2\text{s}\))

6. A ball is thrown horizontally from the roof of a building 75.0m tall and it lands 14.0m from the base. What is the ball’s initial velocity?
   \[ V_0 = 3.57 \text{ m/s} \]
7. Daredevil Evel Knievel attempts to jump over a large wall. Leaving the ramp at a height of 5m at angle of 30 degrees, will he clear the 12m wall that is 75m away going 33m/s?
   He clears it (y = 14.5m)