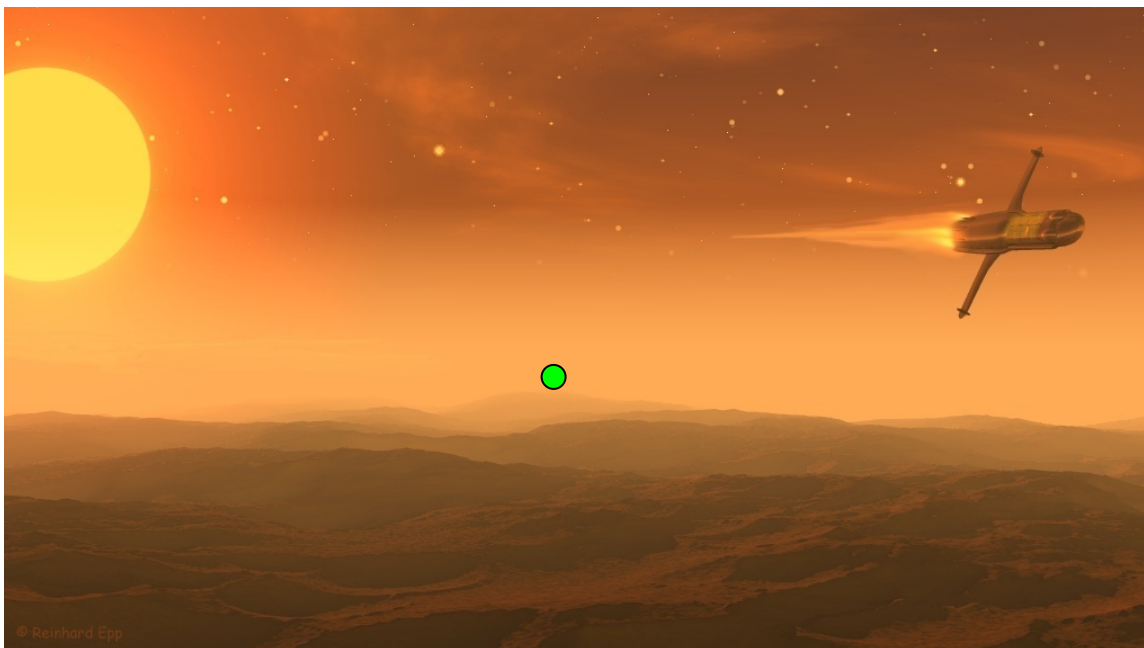


1-Dimensional Motion Assignment

<http://cs.clark.edu/~mac/physlets/RCandRLcircuits/Motion1-D.htm>



For the questions below assume that a space ship starts at an initial position from home base. The Green home base is at position $X=0.0$ and the space ship can easily fly through home base. The space ship has an initial velocity V_0 and an Acceleration, A . positive values represent position, velocity, or acceleration to the right and negative values to the left.

QUESTIONS

Using $X_0=30$ m, $V_0= -15$ m/s, and $A= +2.0$ m/s/s

At what time does the space ship turn around, if ever?	
What is its acceleration when it turns around?	
How far is it from its starting point at the end of the 10 sec simulation?	
What is the total distance covered over the 10 sec simulation?	
What is its maximum speed over the 10 second simulation?	
What is its change in velocity for the 10 second simulation?	

Using $X_0 = -50$ m, $V_0 = +15$ m/s, and $A = -1.5$ m/s/s

At what time does the space ship turn around, if ever?	
What is its acceleration when it turns around?	
How far is it from its starting point at the end of the 10 sec simulation?	
What is the total distance covered over the 10 sec simulation?	
What is its maximum speed over the 10 second simulation?	
What is its change in velocity for the 10 second simulation?	

Using $X_0 = 0$ m, $V_0 = +9$ m/s, and $A = -3.0$ m/s/s

At what time does the space ship turn around, if ever?	
What is its acceleration when it turns around?	
How far is it from its starting point at the end of the 10 sec simulation?	
What is the total distance covered over the 10 sec simulation?	
What is its maximum speed over the 10 second simulation?	
What is its change in velocity for the 10 second simulation?	

Describe what values of $X_0 =$ _____ $V_0 =$ _____, and $A =$ _____ must be used to get position vs time graph that starts at -20 when $t=0$ is concaved up and crosses the time axis ($x=0$) when $t=6$ seconds. There may be more than one unique answer.