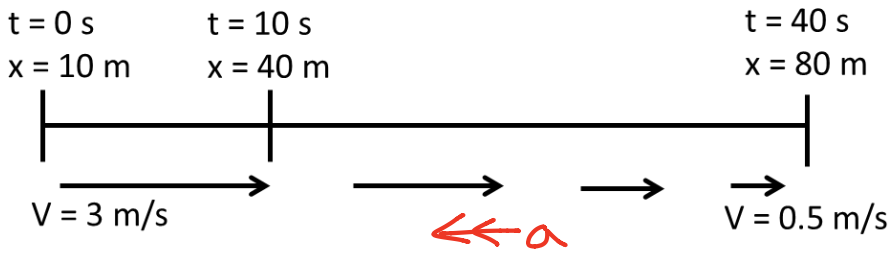
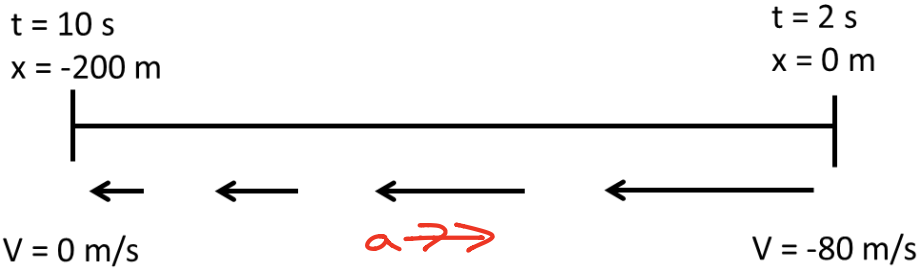
Worksheet 1.3

1.



a. Draw it in an acceleration arrow in the diagram above.
b. What is the final velocity? 0.5m/s
c. What is the time of travel of the object? 40s
d. What is total displacement of the object? 70m
e. What is the displacement of the object at t = 10 s? 30m

2.



a. Is the acceleration + or -? Explain It is opposite the velocity
b. Calculate the acceleration. $a = \frac{\Delta v}{\Delta t} = \frac{0-(-80m/s)}{8s} = 10 m/s^2$
c. How long is the time interval?
d. Is the displacement + or -? Explain. (-) moving to the left
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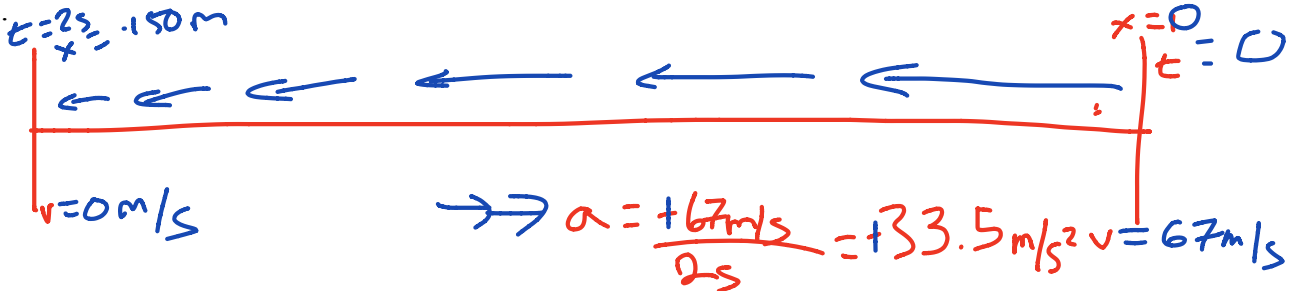
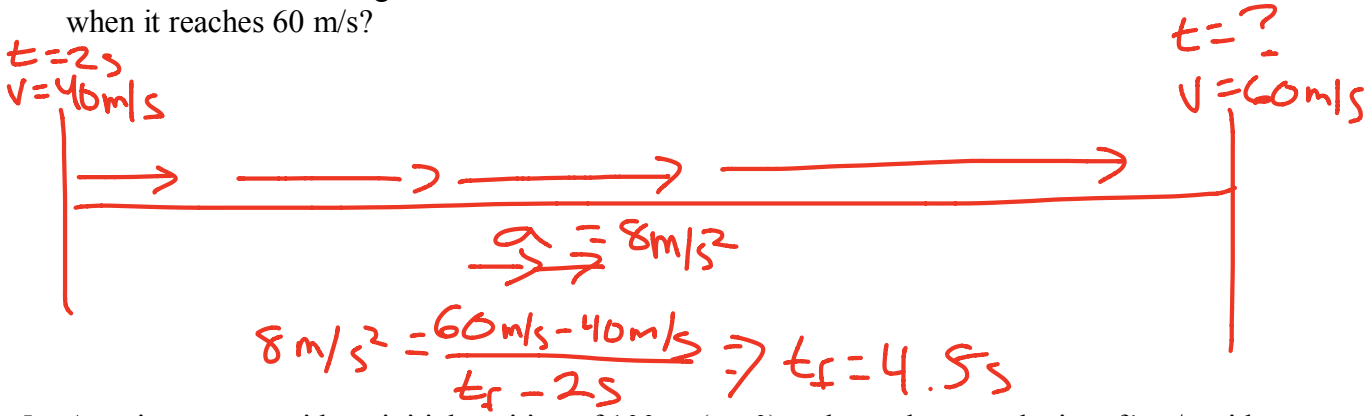
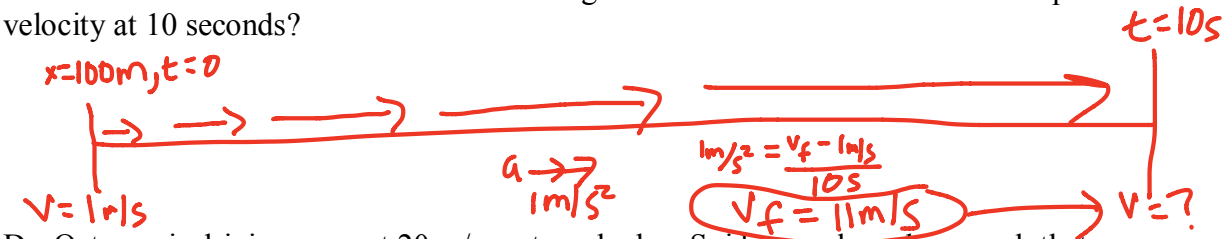
3. When a Super Hornet jet lands on an aircraft carrier, the jet must decelerate from 67 m/s to 0 m/s over a distance of 150 m and a time of 2 seconds. Draw a motion diagram that includes all of this information. What is the direction of the acceleration according to your diagram? Include the acceleration in you diagram. Calculate the acceleration required for the jet to stop.



4. During a race, a funny car traveling in a straight line passes a point traveling with a velocity of 40 m/s when the clock reads 2 s. After an acceleration of 8 m/s^2, the car's velocity is 60 m/s. Draw a motion diagram to describe the situation described. What does the clock read when it reaches 60 m/s?



5. A sprinter starts with an initial position of 100 m (t = 0) and travels at a velocity of1 m/s with an acceleration of 1 m/s^2. Draw a motion diagram for this scenario. What is the sprinter's velocity at 10 seconds?



6. Dr. Octopus is driving a car at 20 m/s eastward when Spiderman launches a web that captures Dr. Octopus's car. The web pulls the car back with a constant acceleration of 2 m/s^2 to the West. After the car reaches a velocity of zero, the car continues with the same acceleration until the car has a velocity of -12 m/s. Draw a motion diagram for Dr. Octopus's car. What is the total time?