Match the Graph Lab
A Remote Learning Activity

Use the website: https://bit.ly/ULLEMatchTheGraph to reproduce each of the following displacement, velocity, and acceleration graphs. Determine the proper arrangement of track and ball that will generate each of the 12 graphs that are shown below. Sketch your configuration in the space provided on the back of this lab. Describe the arrangement. Indicate the initial position and initial velocity of the cart. ALL OF THE GRAPHS CAN BE MADE WITH A **SINGLE STRAIGHT TRACK.**
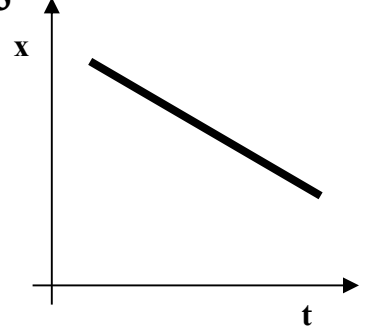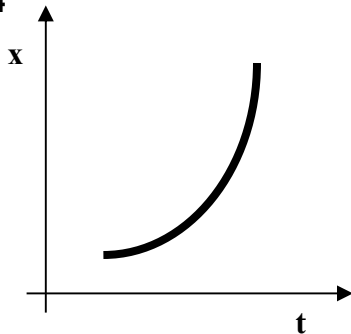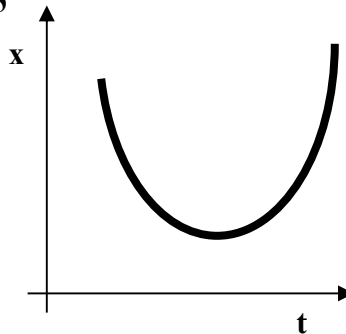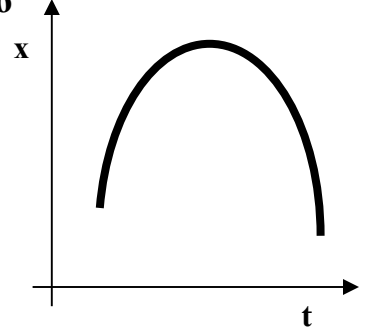
#1
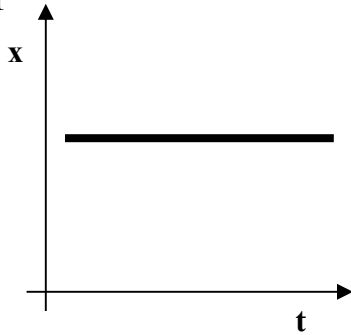
#2
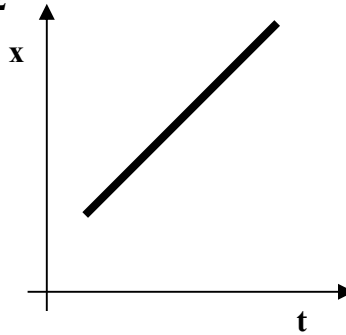
#3

#4

#5

#6

#7
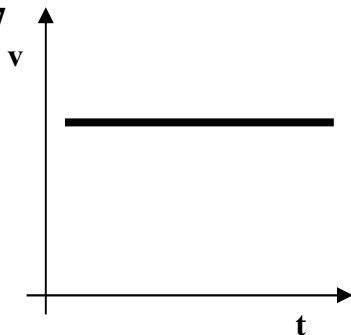
#8
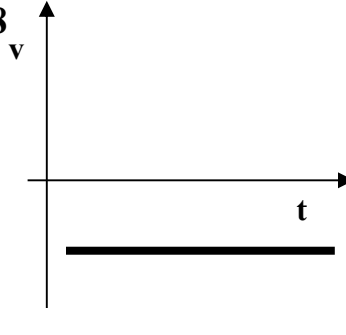
#9
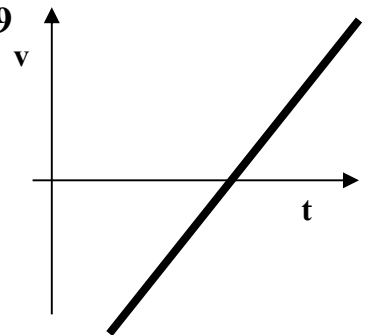
#10
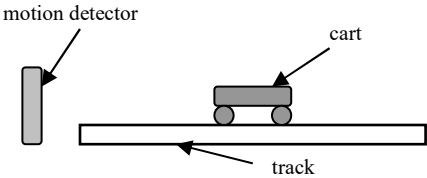
#11
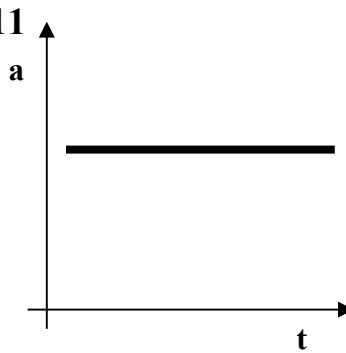
#12
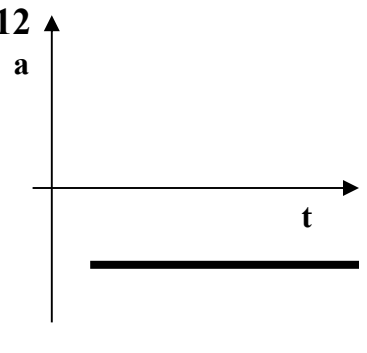
#1 Track is horizontal. Cart can be placed anywhere on the track. Initial velocity is zero. motion detector cart track	#2	#3
#4	#5	#6
#7	#8	#9
#10	#11	#12

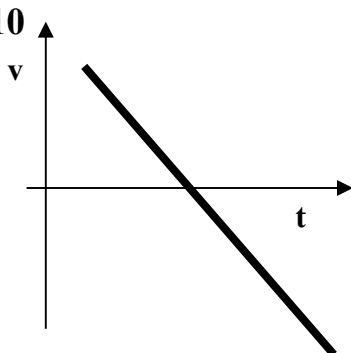In the table below a type of motion is described. Indicate which, if any, of the displacement, velocity, and acceleration graphs show this type of motion. (Some may have more that one answer or may be blank.)

Motion	x graph	v graph	a graph
Cart moving toward motion sensor at a constant speed.			
Cart initially moving toward sensor but accelerating away from sensor.			
Cart that is siting still.			
Cart that is accelerating toward the sensor.			

Now that you have practiced with straight tracks, complete challenges 6, 8, 9, and 15. Some of these challenges will require bends in the track. In the spaces below, sketch the position velocity and acceleration graphs for each. Sketch the track and list initial position and velocity values.

Challenge #6:

Challenge #8

Challenge #9

Challenge #15