Anderson Junior College
2014 JC1 H2 Physics

Name : …………………………( )

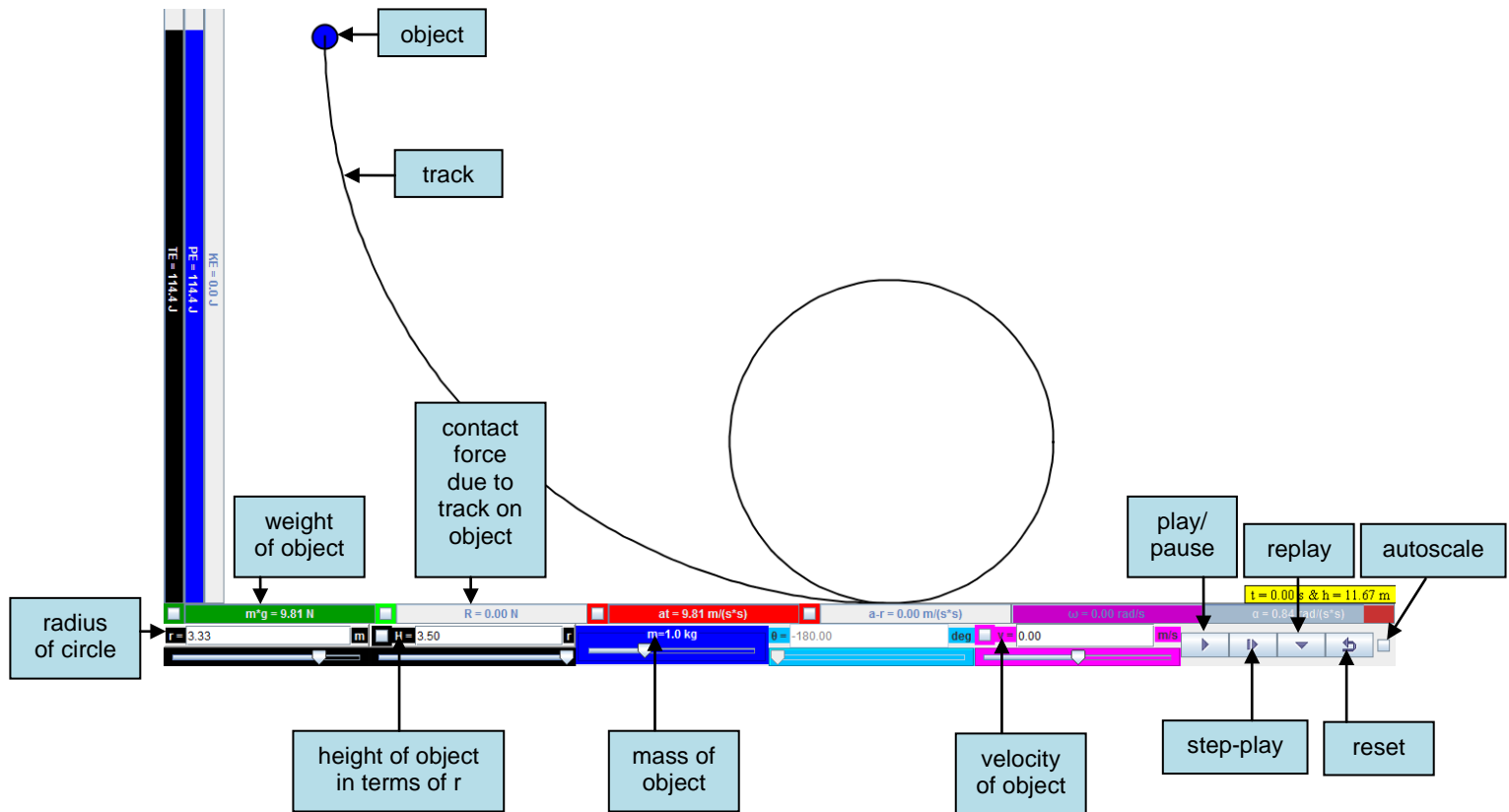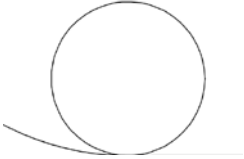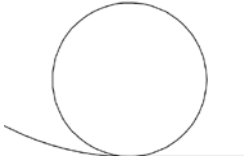**Worksheet B: Motion in a Circle** (by Easy Java Simulation, EJS)

PDG : ………… Date:……….......

1. Screen familiarization

2. Check boxes for *m*g* (weight of object), *R* (contact force on object due to track) and *v* (velocity of object).

3. Click play, and observe the arrows representing the weight and contact force vectors.

   (a) When object is approaching the bottom/top of loop, click pause.

   (b) Click step-play repeatedly and observe the magnitudes and directions of the forces when the object is at the bottom/top.

   (c) Click play to resume.

4. For each value of *H* shown in the table below, draw and label the force diagram and the velocity diagram of the object at the bottom and top of the loop; and draw the path of the object. (You may use step-play when the object is approaching the location of interest.)

H	At bottom of loop		At top of loop		path of object
	force diagram	velocity	force diagram	velocity	
3.0 *r*					
2.0 *r*					

5. Experiment with the simulation to determine the minimum value of *H* in terms of *r* when it just loses contact with the track. Record the value of *H*. Draw and label the force diagram and the velocity diagram when this occurs; and draw the path of the object.

H_{min}	At top of loop		path of object
	force diagram	velocity	