

Report Sheet

Centripetal Acceleration

Data:

Radius (cm)	Speed (cm)	Δv (cm)
9.0	3.0	
9.0	6.0	
4.5	3.0	

Include the graphical subtraction for all three arcs.

Questions:

- 1) How does your graphical vector additions suggest that the direction of the acceleration vector is toward the center of the circle?
- 2) Let the length of the first Δv be the standard of comparison. By what factor does the length change when the speed is doubled? What mathematical relationship does this suggest between acceleration and speed?
- 3) By what factor does the length of the Δv vector change when the radius is halved? What is the mathematical relationship does this suggest between acceleration and speed?
- 4) Write the relationship between acceleration, speed and radius for an object moving at a constant speed along a circular path, based on the results of the data you collected.