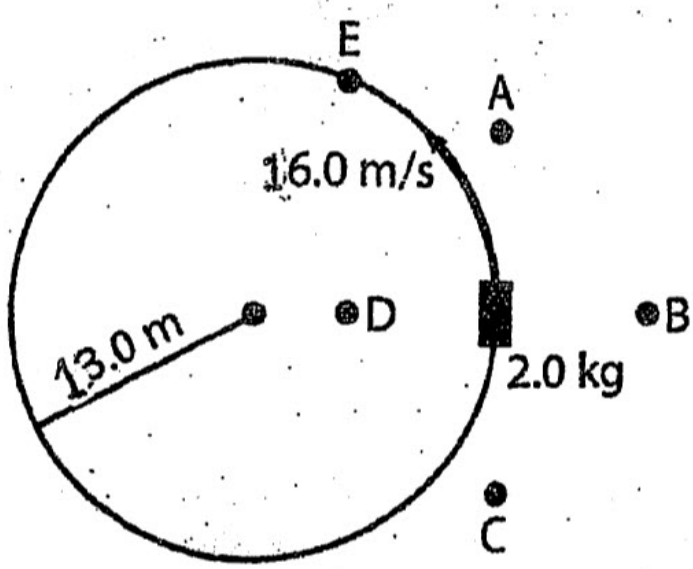
A 2.0-kilogram cart travels at a constant speed of 16.0 meters per second in a horizontal circle of radius 13.0 meters.



1) Find the Centripetal Acceleration.

2.) Find the Centripetal Force.

3.) Toward which Point is the Centripetal Force directed?

4.) Toward which Point is the Centripetal acceleration directed?

5.) Toward which Point is the Tangential velocity directed?

1. A 4 Kg rock is attached to a rope 4 m long. It swings around with a speed of 2 m/s
   a. What is the centripetal force holding the rocks in its path?
   b. What centrifugal force?
   c. What is the rock's period of rotation?
   d. What would be its centripetal acceleration?

2. A 2Kg object is at the end of a 4m long string that can only exert a force of 18 newtons without breaking.
   a. What is the maximum speed you could swing this object without breaking the string?
   b. What is the object's period of rotation?
   c. What is the object's centripetal acceleration?

3. A 400 Kg car takes 20 seconds to move around a circular track at a uniform speed. The radius of the track is 50 m.
   a. What is the car's period of rotation?
   b. What is the car's speed?
   c. What is the car's centripetal acceleration?
   d. What force must the car's tires exert against the road?