

PHYZVIDEO SPRINGBOARD: UNIFORM CIRCULAR MOTION



MOVING IN CIRCLES

1. What is a circle?

2. a. What is the circle's special distance called?

b. What symbol is used to represent it?

c. What SI units are used when measuring it?

3. What must be true about the orbital radius of a body in uniform **circular** motion?

4. Which of the following statements is true?

A body in **uniform** circular motion maintains constant speed.

A body in **uniform** circular motion maintains constant velocity.

A body in **uniform** circular motion maintains constant speed and velocity.

5. How could the speed of a body in uniform circular motion be measured or calculated using a meterstick and a stopwatch?

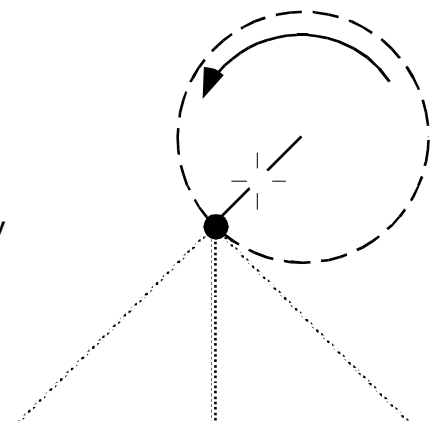
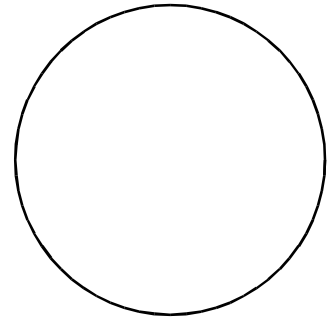
6. Which of the following statements is true?

A body in uniform circular motion is accelerating.

A body in uniform circular motion is not accelerating.

PLEASE RELEASE ME, LET ME GO

7. Suppose a body (such as Odie™) is being swung in circular motion (in a zero-gravity environment) when the cord is suddenly released (or breaks). Describe the subsequent path of the body.



8. View the preliminary segment of *Physics: Cinema Classics* B-26.

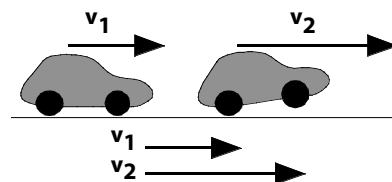
a. Prediction. What path will the puck follow when the string breaks?

b. Observation. View the outcomes of the several trials shown in subsequent segments of *P:CC* B-26. What path did the puck follow when the string broke?

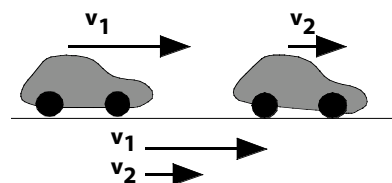
ACCELERATION WITH CONSTANT SPEED?

9. What is the **direction** of the change in velocity of

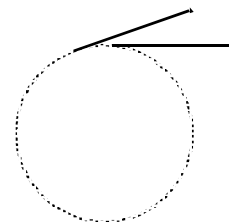
a. a car that's speeding up? (Draw the velocity vectors and determine the difference between them using $\mathbf{v}_1 + \mathbf{v} = \mathbf{v}_2$.)



b. a car that's slowing down? (Draw the velocity vectors and determine the difference between them using $\mathbf{v}_1 + \mathbf{v} = \mathbf{v}_2$.)

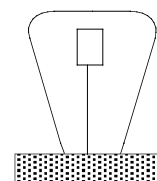


c. a body in circular motion? (Step through the graphical derivation within *P:CC* B-26.)



10. Considering your answers to question 9, what is the direction of acceleration of a body in uniform circular motion?

11. A cork is suspended from the bottom of an inverted, water-filled jar. The cork acts as an acceleration indicator. The cork moves ___ in the direction of the acceleration of the jar.
___ opposite to the direction of the acceleration of the jar.



a. Prediction. Where will the cork move when the puck is set into circular motion?

b. Observation. Where did the cork move when the puck was set into circular motion? Does this verify your answer to question 10?

