Wednesday Reading Assessment: Unit 5, Circular Motion

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1 Memory Bank

- $\Delta s = r\Delta\theta$
- $\omega = \frac{\Delta\theta}{\Delta t}$ ... Definition of angular velocity
- $v = r\omega$ ... Relationship between tangential velocity and angular velocity a distance r from the center

2 Angular Displacement and Velocity

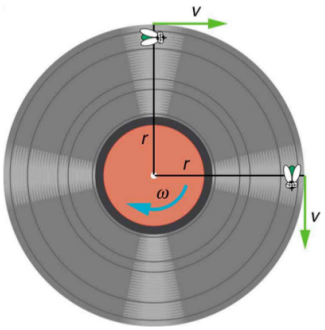

Figure 1: A record that is spinning counter-clockwise.

1. Suppose a record is spinning at 45 revolutions per minute, playing music (see Fig. 1). The radius is 15 cm. Which of the following is true?
   - A: A point near the edge (where the fly is) moves more slowly than one near the center.
   - B: A point near the edge (where the fly is) moves faster than one near the center.
   - C: A point near the edge (where the fly is) moves at the same speed as one near the center.
   - D: A point near the edge has velocity, but the a point near the center does not have any velocity.
2. Suppose the radius is 15 cm, and the record spins at 45 revolutions per minute. What is the velocity of the fly?

3. Suppose the radius is 15 cm, and we observe the velocity of the fly to be 0.35 m/s. What is the angular velocity of the record?