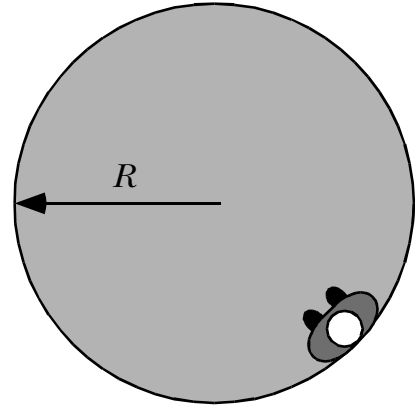


PhyzJob: UCM & Gravity Equation Wrap-Up



Uniform Circular Motion

1. Jearl (whose masculine mass is 72 kg) whirls around in the Rotor, as shown in the bird's-eye view to the right. The Rotor is spinning clockwise once every 1.8 s and has a radius of 3.4 m.



- Draw a vector representing Jearl's tangential velocity. (Label it \mathbf{v} .)
- Draw a vector representing Jearl's acceleration. (Label it \mathbf{a} .)
- Draw a vector representing the net force acting on Jearl. (Label it according to the type of force it is: \mathbf{D} if it is drag, \mathbf{f} if friction, \mathbf{N} if it is normal, \mathbf{T} if tension, \mathbf{W} if weight.)

d. Calculate Jearl's tangential speed.

e. Calculate Jearl's acceleration.

f. Calculate the net force acting on Jearl.

- Jearl's niece has half Jearl's mass. If she joins him on the Rotor,
 - how would her tangential speed compare to Jearl's? (Twice, half, same, etc.)
 - how would her acceleration compare to Jearl's? (Twice, half, same, etc.)
 - how would the net force on her compare to Jearl's? (Twice, half, same, etc.)

h. If the Rotor's speed doubled, how would the net force on Jearl change? (Twice, half, same, etc.)

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