Question 1 (2 points)

When discussing angular kinematics, the symbol α means...

○ Rotational (angular) acceleration.

○ Rotational speed.

○ Time rate of change of angular acceleration.

○ Time rate of change of the angular position.

○ More than one of the above is correct.

Question 2 (2 points)

θ, when used in angular kinematic equations, should have units of...

○ Degrees.

○ Radians.

○ Either will work.

Question 3 (2 points)

How many revolutions are in 948 radians?

○ 1 rev

○ 2.63 rev

○ 151 rev

○ 302 rev

○ 474 rev

Question 4 (2 points)

A wheel of radius 1.2 meters initially rotates clockwise around its center with an angular speed of 10 rad/s, and it steadily increases its rate of rotation. 4 second later, the rate of rotation is 30 rad/s. What is the **ratio** of the **angular** acceleration of a point on the rim of the wheel to a point that is 0.6 meters from the center of the wheel?

○ 0

○ 1

○ 2

○ Not enough information.

○ None of the above.

Question 5 (2 points)

Two coins rotate on a turntable. Coin B is twice as far from the axis as coin A. The **linear (AKA tangential) velocity** of **Coin A**...
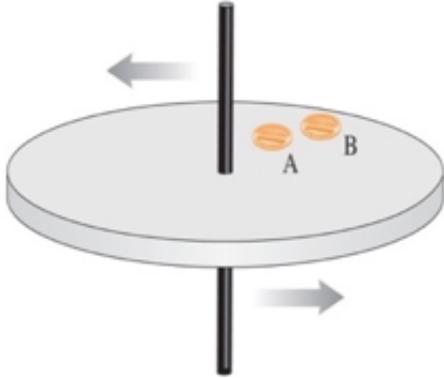
○ Is one quarter that of B.

○ Is half that of B.

○ Equals that of B.

○ Is twice that of B.

Question 6 (2 points)

An old LP record that is originally rotating at 33.3 rad/s is given a uniform angular acceleration of 2.15 rad/s^2. Through what angle has the record turned when its angular speed reaches 72.0 rad/s?

○ 67 rad

○ 83 rad

○ 315 rad

○ 700 rad

○ 948 rad

Question 7 (2 points)

An object rotates with a non-constant time-varying angular acceleration. The angular velocity as a function of time is given by:

$$\omega(t) = At^3,$$

where A is a positive constant. What is the angular acceleration of the object at 2.0 seconds?

○ $4A$

○ $\frac{16}{3}A$

○ $8A$

○ $12A$

○ $16A$

Question 8 (2 points)

What is the **vector** direction of the angular velocity of the second hand on an analog clock?

○ Towards the top of the clock.

○ Out of the clock face (away from the clock).

○ Into the clock face.

○ Same as the direction of the tangential velocity.

○ Depends on the position of the second hand.

Question 9 (2 points)

A particle of mass 3.0 kg is located at (4, 0) m. A second particle of mass 2.0 kg is located at (0, 0) m, and a third particle of mass 5.0 kg is located at (3, 2) m. What is the location of the center of mass?

○ (3.38, 2) m

○ (3.38, 1.25) m

○ (3.5, 1) m

○ (2.7, 1) m

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