#### **AP Quiz: Rotational Motion**

- A disk is free to rotate about an axis perpendicular to the disk and passing through its center. If the disk starts from rest and accelerates uniformly at the rate of 5 rad/s<sup>2</sup> for 4 s, what its angular displacement during this time? (I pt)
  - (A) 10 rad (B) 20 rad (C) 30 rad (D) 40 rad (E) 50 rad



1 D) B(4) = \$43 - 3(4) = 16 mil

Wary - to - 4 mess

2. There are two people on a merry go round. Person A is 2.3 m from the axis of rotation. Person 8 is 3.4 m from the ax is of rotation. The merry go round moves through an angular displacement of  $\pi/4$ . What linear displacement (arc length) is covered by both people? (2 pts)



3. A disc rotates about an axis through its center according to the function:  $\theta(t) = t^2 - 3t^4$ 

- A) What is the angular displacement of the disc at 3 s? (1 pt)
- B) What is the instant angular velocity of the disc at 3 s? (1 pt)
- C) What is the instant angular acceleration at 3 s? (1 pt)
- D) What is the average angular velocity at 4 s? (1 pt)

4. A child pushes, with a constant force, a merry-go-round with a radius of 2.5 m, from rest to an angular velocity of 3 rad/s in 8s. What is the merry-go-round's centripetal acceleration at this point? (2 pts)

5. (1 pt)

Two wheels are fixed to each other and are free to notate about a frictionless axis through their concentric centers. Four forces are exerted tangentially to the wheels. The magnitude of the net torque is:

# **Answers For Ap Physics Review Rotational Bertrand**

William Billich

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