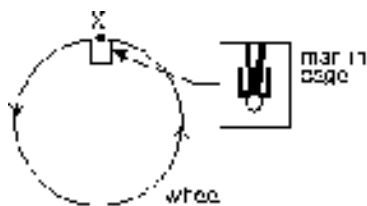


1. An object moves in a circle at constant speed. The work done by the centripetal force is zero because:
 - A) the displacement for each revolution is zero
 - B) the average force for each revolution is zero
 - C) there is no friction
 - D) the magnitude of the acceleration is zero
 - E) the centripetal force is perpendicular to the velocity
2. A baseball is hit high into the upper bleachers of left field. Over its entire flight the work done by gravity and the work done by air resistance, respectively, are:
 - A) positive; positive
 - B) positive; negative
 - C) negative; positive
 - D) negative; negative
 - E) unknown since vital information is lacking
3. A 0.50-kg object moves in a horizontal circular track with a radius of 2.5 m. An external force of 3.0 N, always tangent to the track, causes the object to speed up as it goes around. The work done by the external force as the mass makes one revolution is:
 - A) 24 J
 - B) 47 J
 - C) 59 J
 - D) 94 J
 - E) 120 J
4. An object moving in a circle at constant speed:
 - A) must have only one force acting on it
 - B) is not accelerating
 - C) is held to its path by centrifugal force
 - D) has an acceleration of constant magnitude
 - E) has an acceleration that is tangent to the circle
5. An object of mass m and another object of mass $2m$ are each forced to move along a circle of radius 1.0 m at a constant speed of 1.0 m/s. The magnitudes of their accelerations are:
 - A) equal
 - B) in the ratio of $\sqrt{2} : 1$
 - C) in the ratio of 2 : 1
 - D) in the ratio of 4 : 1

- E) zero
6. The magnitude of the force (in newtons) required to cause an 0.04-kg object to move at 0.6 m/s in a circle of radius 1.0 m is:
- A) 2.4×10^{-2}
 - B) 1.4×10^{-2}
 - C) $1.4\pi \times 10^{-2}$
 - D) $2.4\pi^2 \times 10^{-2}$
 - E) 3.13
7. An 800-N passenger in a car, presses against the car door with a 200 N force when the car makes a left turn at 13 m/s. The (faulty) door will pop open under a force of 800 N. Of the following, the least speed for which the man is thrown out of the car is:
- A) 14 m/s
 - B) 19 m/s
 - C) 20 m/s
 - D) 26 m/s
 - E) 54 m/s
8. An automobile moves on a level horizontal road in a circle of radius 30 m. The coefficient of friction between tires and road is 0.50. The maximum speed with which this car can round this curve is:
- A) 3.0 m/s
 - B) 4.9 m/s
 - C) 9.8 m/s
 - D) 12 m/s
 - E) 13 m/s
9. A car rounds a 75-m radius curve at a constant speed of 18 m/s. A ball is suspended by a string from the ceiling of the car and moves with the car. The angle between the string and the vertical is:
- A) 0
 - B) 1.4°
 - C) 24°
 - D) 90°
 - E) cannot be found without knowing the mass of the ball
10. A giant wheel, 40 m in diameter, is fitted with a cage and platform on which a man can stand. The wheel rotates at such a speed that when the cage is at X (as shown) the force exerted by the man on the platform is equal to his weight. The speed of the man (in m/s) is:



- A) 14
B) 20
C) 28
D) 80
E) 120
11. One end of a 1.0-m long string is fixed, the other end is attached to a 2.0-kg stone. The stone swings in a vertical circle, passing the bottom point at 4.0 m/s. The tension force of the string (in newtons) at this point is about:
A) 0
B) 12
C) 20
D) 32
E) 52
12. A coin is placed on a horizontal phonograph turntable. Let N be the normal force exerted by the turntable on the coin, f be the frictional force exerted by the turntable on the coin, and $f_{s, \max}$ be the maximum force of the static friction. The speed of the turntable is increased in small steps. If the coin does not slide, then
A) N increases, f increases, and $f_{s, \max}$ stays the same
B) N increases, f increases, and $f_{s, \max}$ increases
C) f increases and both N and $f_{s, \max}$ stay the same
D) N , f , and $f_{s, \max}$ all stay the same
E) N , f , and $f_{s, \max}$ all increase
13. An object is constrained by a cord to move in a circular path of radius 0.5 m on a horizontal frictionless surface. The cord will break if its tension exceeds 16 N. The maximum kinetic energy of the object is:
A) 4 J
B) 8 J
C) 16 J
D) 32 J
E) 64 J

Answer Key -- Ch.6 Practice Quiz

1. E
2. D
3. B
4. D
5. A
6. B
7. D
8. D
9. C
10. B
11. E
12. C
13. A