

Phys 103 Quizzes Distributed Lecture wise (Quizzes are available online as active form). Results are included automatically in the Grading Center of the Blackboard

Prepared and programed by: Prof. Nasser S. Alzayed (2015)

PHYS-103-CHAP01-LECT01-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	2
Total Points	20

Question 1.

Dimensional analysis can give you the numerical value of constants of proportionality that may appear in an algebraic expression

(Type: True/False, Points: 10, Attempts: 1)

- True
- False

Question 2.

The distance between two cities is 100 mi. The number of kilometers between the two cities is:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- smaller than 100
- larger than 100
- equal to 100
- not enough data

PHYS-103-CHAP02-LECT02-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	4
Total Points	40

Question 1.

Under which of the following conditions is the magnitude of the average velocity of a particle moving in one dimension smaller than the average speed over some time interval?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- A particle moves in the +x direction without reversing.
- A particle moves in the +x direction and then reverses the direction of its motion.
- A particle moves in the -x direction without reversing.
- There are no conditions for which this is true.

Question 2.

At what time (in seconds) velocity changes direction?

(Type: Numeric, Points: 10, Attempts: 1)

Question 3.

At what time (in seconds) velocity (v) = 0

(Type: Numeric, Points: 10, Attempts: 1)

Question 4.

What is the value of the average speed when t = 200 s?

(Type: Numeric, Points: 10, Attempts: 1)

PHYS-103-CHAP02-LECT03-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	2
Total Points	20

Question 1.

If a car is traveling eastward and slowing down, what is the direction of the force on the car that causes it to slow down?

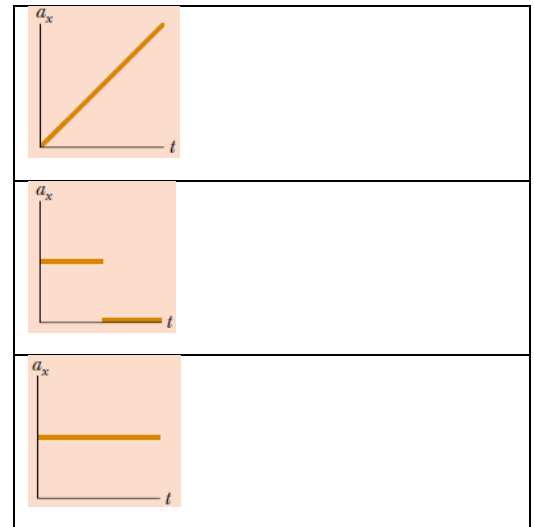
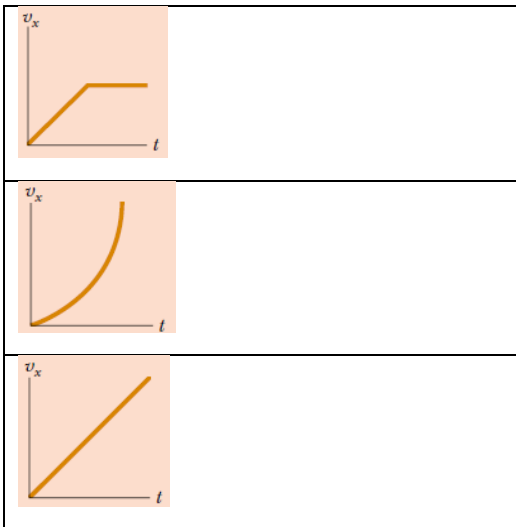
(Type: Multiple Choice, Points: 10, Attempts: 1)

- eastward
- neither of these
- westward

Question 2.

In the figure , match each v_x - t graph on the left with the a_x - t graph on the right that best describes the motion

(Type: Matching, Points: 10, Attempts: 1)



PHYS-103-CHAP03-LECT04-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	6
Total Points	60

Question 1.

Which of the following are vector quantities: ?

(Type: Multiple Response, Points: 10, Attempts: 1)

- your age
- velocity
- speed
- acceleration
- mass

Question 2.

The magnitudes of two vectors A and B are $A = 12$ units and $B = 8$ units. Which of the following pairs of numbers represents the largest and smallest possible values for the magnitude of the resultant vector $R = A + B$?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- 14.4 units, 4 units
- none of these answers.
- 12 units, 8 units
- 20 units, 4 units

Question 3.

Choose the correct response to make the sentence true: A component of a vector is:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- always larger than the magnitude of the vector.
- sometimes larger than the magnitude of the vector.
- never larger than the magnitude of the vector.

Question 4.

If at least one component of a vector is a positive number, the vector cannot :

(Type: Multiple Choice, Points: 10, Attempts: 1)

- have any component that is negative
- be zero
- have three dimensions.

Question 5.

If $A + B = 0$, the corresponding components of the two vectors A and B must be:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- equal
- positive
- of opposite sign

Question 6.

In the Unit vectors Flash Activity: slide the x-axis (or type directly) to the value: 2.5, then slide the y-axis or type directly the value: 3.1.

what is the value you got for C? (Use the EXCACT No)

(Type: Numeric, Points: 10, Attempts: 1)

PHYS-103-CHAP04-LECT05-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	2
Total Points	20

Question 1.

Which of the following cannot possibly be accelerating?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- An object moving with a constant speed
- An object moving along a curve.
- An object moving with a constant velocity

Question 2.

Consider the following controls in an automobile: gas pedal, brake, steering wheel. The controls in this list that cause an acceleration of the car are:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- all three controls
- the gas pedal and the brake

- () only the brake
- () only the gas pedal

PHYS-103-CHAP04-LECT06-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	3
Total Points	30

Question 1.

Using results you recorded from interactivity flash;

1- What was the Time of Flight? in seconds

(Type: Numeric, Points: 10, Attempts: 1)

Question 2.

Using results you recorded from interactivity flash;

1- What was the Horizontal Range? in meters

(Type: Numeric, Points: 10, Attempts: 1)

Question 3.

Using results you recorded from interactive flash;

1- What was the magnitude of velocity in the moment of landing? in m/s

(Type: Numeric, Points: 10, Attempts: 1)

PHYS-103-CHAP04-LECT06-Quiz02-V01

Quiz Settings	Value
Type	Graded
Total Questions	7

Total Points	70
--------------	----

Question 1.

Suppose you are running at constant velocity and you wish to throw a ball such that you will catch it as it comes back down. In what direction should you throw the ball relative to you?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- straight up
- at an angle to the ground that depends on your running speed
- in the forward direction

Question 2.

As a projectile thrown upward moves in its parabolic path, at what point along its path are the velocity and acceleration vectors for the projectile perpendicular to each other?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- nowhere
- the launch point
- the highest point

Question 3.

As the projectile moves along its path, at what point are the velocity and acceleration vectors for the projectile parallel to each other?

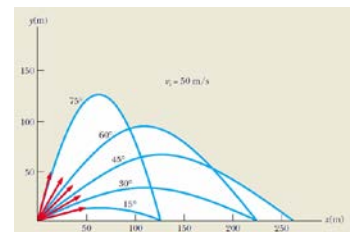
(Type: Multiple Choice, Points: 10, Attempts: 1)

- nowhere
- the launch point
- the highest point

Question 4.

Rank the launch angles for the five paths in the figure with respect to time of flight, from the shortest time of flight to the longest

(Type: Sequence, Points: 10, Attempts: 1)



#	Choice	Correct order
---	--------	---------------

1	60°	
2	15°	
3	45°	
4	75°	
5	30°	

Question 5.

A particle moves in a circular path of radius r with speed v . It then increases its speed to $2v$ while traveling along the same circular path. The centripetal acceleration of the particle has changed by a factor of

(Type: Multiple Choice, Points: 10, Attempts: 1)

- 0.25
- impossible to determine
- 0.5
- 2
- 4

Question 6.

A particle moves along a path and its speed increases with time. In which of the following cases are its acceleration and velocity vectors parallel?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the path is circular
- the path is a parabola
- the path is straight
- never.

Question 7.

A particle moves along a path and its speed increases with time. In which of the following cases are its acceleration and velocity vectors perpendicular everywhere along the path?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the path is circular

- never.
- the path is straight
- the path is a parabola

PHYS-103-CHAP05-LECT07-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	6
Total Points	60

Question 1.

Which of the following statements is most correct?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- It is possible for an object to have motion in the absence of forces on the object.
- Both (a) and (b) are correct
- It is possible to have forces on an object in the absence of motion of the object.
- Neither(a) nor (b) is correct.

Question 2.

Quiz 5.2: An object experiences no acceleration. Which of the following cannot be true for the object?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- A single force acts on the object
- No forces act on the object.
- Forces act on the object, but the forces cancel

Question 3.

Quiz 5.3 An object experiences a net force and exhibits an acceleration in response. Which of the following statements is always true?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- The object moves in the direction of the force.
- The acceleration is in the same direction as the velocity.
- The acceleration is in the same direction as the force.

The velocity of the object increases.

Question 4.

Quiz 5.7 If a fly collides with the windshield of a fast-moving bus, which object experiences an impact force with a larger magnitude?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the fly
- the bus
- the same force is experienced by both

Question 5.

Quiz 5.8 If a fly collides with the windshield of a fast-moving bus, which object experiences the greater acceleration:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the fly
- the bus
- the same acceleration is experienced by both.

Question 6.

Quiz 5.9 Which of the following is the reaction force to the gravitational force acting on your body as you sit in your desk chair?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- The normal force exerted by the chair
- The force you exert downward on the seat of the chair
- Neither of these forces.

PHYS-103-CHAP05-LECT08-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	3
Total Points	30

Question 1.

Quiz 5.11 You press your physics textbook flat against a vertical wall with your hand. What is the direction of the friction force exerted by the wall on the book?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- downward
- upward
- out from the wall
- into the wall

Question 2.

Quiz 5.12 A crate is located in the center of a flatbed truck. The truck accelerates to the east, and the crate moves with it, not sliding at all. What is the direction of the friction force exerted by the truck on the crate?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- to the west
- No friction force exists because the crate is not sliding.
- to the east

Question 3.

Quiz 5.13 You place your physics book on a wooden board. You raise one end of the board so that the angle of the incline increases. Eventually, the book starts sliding on the board. If you maintain the angle of the board at this value, the book:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- moves at constant speed
- speeds up
- none of these.
- slows down

PHYS-103-CHAP06-LECT09-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	4
Total Points	40

Question 1.

Quiz 6.1 You are riding on a Ferris wheel that is rotating with constant speed. The car in which you are riding always maintains its correct upward orientation—it does not invert. What is the direction of your centripetal acceleration

when you are at the top of the wheel?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- upward
- downward
- impossible to determine

Question 2.

Quiz 6.1b You are riding on a Ferris wheel that is rotating with constant speed. The car in which you are riding always maintains its correct upward orientation—it does not invert. What is the direction of your centripetal acceleration when you are at the bottom of the wheel?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- upward
- downward
- impossible to determine.

Question 3.

Quiz 6.2 You are riding on the Ferris wheel . What is the direction of the normal force exerted by the seat on you when you are at the top of the wheel?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- upward
- downward
- impossible to determine

Question 4.

Quiz 6.2b You are riding on the Ferris wheel . What is the direction of the normal force exerted by the seat on you when you are at the bottom of the wheel?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- upward
- downward

() impossible to determine.

PHYS-103-CHAP07-LECT10-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	4
Total Points	40

Question 1.

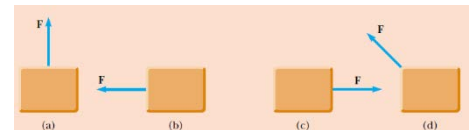
Quiz 7.1 The gravitational force exerted by the Sun on the Earth holds the Earth in an orbit around the Sun. Let us assume that the orbit is perfectly circular. The work done by this gravitational force during a short time interval in which the Earth moves through a displacement in its orbital path is:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- () zero
- () impossible to determine.
- () positive

Question 2.

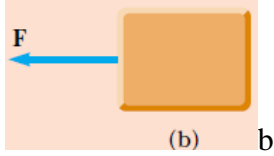
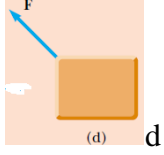
Quiz 7.2 Figure shows four situations in which a force is applied to an object. In all four cases, the force has the same magnitude, and the displacement of the object is to the right and of the same magnitude. Rank the situations in order of



the work done by the force on the object, from most positive to most negative.

(Type: Sequence, Points: 10, Attempts: 1)

#	Choice	Correct order
1	<p>(c) c</p>	
2	<p>(a) a</p>	

3		
4		

Question 3.

Quiz 7.5 A dart is loaded into a spring-loaded toy dart gun by pushing the spring in by a distance d . For the next loading, the spring is compressed a distance $2d$. How much work is required to load the second dart compared to that required to

load the first?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- four times as much
- half as much
- one-fourth as much
- the same
- two times as much

Question 4.

Quiz 7.6 A dart is loaded into a spring-loaded toy dart gun by pushing the spring in by a distance d . For the next loading, the spring is compressed a distance $2d$. How much faster does the second dart leave the gun compared to the first?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- four times as fast
- half as fast
- the same
- two times as fast
- one-fourth as fast.

Quiz Settings	Value
---------------	-------

Type	Graded
Total Questions	8
Total Points	80

Question 1.

Quiz 8.1 Choose the correct answer: The gravitational potential energy of a system:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- is always positive
- can be negative or positive.
- is always negative

Question 2.

Quiz 8.2 An object falls off a table to the floor. We wish to analyze the situation in terms of kinetic and potential energy. In discussing the kinetic energy of the system, we:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- must include the kinetic energy of both the object and the Earth
- can ignore the kinetic energy of the Earth because it is not part of the system
- can ignore the kinetic energy of the Earth because the Earth is so massive compared to the object.

Question 3.

Quiz 8.3 An object falls off a table to the floor. We wish to analyze the situation in terms of kinetic and potential energy. In discussing the potential energy of the system, we identify the system as: (

(Type: Multiple Choice, Points: 10, Attempts: 1)

- both the object and the Earth
- only the Earth.
- only the object

Question 4.

Quiz 8.4 In an isolated system, which of the following is a correct statement of the quantity that is conserved?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- kinetic energy

- both kinetic energy and potential energy.
- potential energy
- kinetic energy plus potential energy

Question 5.

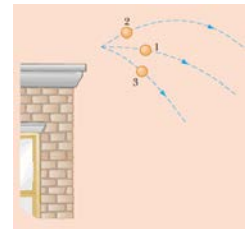
Quiz 8.5 A rock of mass m is dropped to the ground from a height h . A second rock, with mass $2m$, is dropped from the same height. When the second rock strikes the ground, its kinetic energy is:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- twice that of the first rock
- the same as that of the first rock
- half as much as that of the first rock
- impossible to determine.
- four times that of the first rock

Question 6.

Quiz 8.6 Three identical balls are thrown from the top of a building, all with the same initial speed. The first is thrown horizontally, the second at some angle above the horizontal, and the third at some angle below the horizontal, as shown in Figure. Neglecting air resistance, rank the speeds of the balls at the instant each



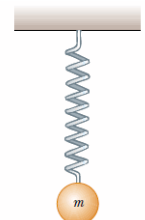
hits the ground.

(Type: Multiple Choice, Points: 10, Attempts: 1)

- $V_1 = V_2 = V_3$
- $V_1 = V_2 \neq V_3$
- $V_1 \neq V_2 \neq V_3$ Alternative 3

Question 7.

Quiz 8.7 A ball is connected to a light spring suspended vertically, as shown in Figure. When displaced downward from its equilibrium position and released, the ball oscillates up and down. In the system of the ball, the spring, and the Earth, what forms of energy are there during the motion?



(Type: Multiple Choice, Points: 10, Attempts: 1)

- kinetic and elastic potential

- elastic potential and gravitational potential.
- kinetic, elastic potential, and gravitational potential
- kinetic and gravitational potential

Question 8.

Quiz 8.8 Consider the situation in Quick Quiz 8.7 once again. In the system of the ball and the spring, what forms of energy are there during the motion?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- kinetic and elastic potential
- elastic potential and gravitational potential.
- kinetic and gravitational potential
- kinetic, elastic potential, and gravitational potential

PHYS-103-CHAP08-LECT12-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	3
Total Points	30

Question 1.

Quiz 8.9 A block of mass m is projected across a horizontal surface with an initial speed v . It slides until it stops due to the friction force between the block and the surface. The same block is now projected across the horizontal surface with an initial speed $2v$. When the block has come to rest, how does the distance from the projection

point compare to that in the first case?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- It is the same.
- It is four times as large
- The relationship cannot be determined
- It is twice

Question 2.

Quiz 8.10 A block of mass m is projected across a horizontal surface with an initial speed v . It slides until it stops due to the friction force between the block and the surface. The surface is now tilted at 30° , and the block is projected up the surface with the same initial speed v . Assume that the friction force remains the same as

when the block was sliding on the horizontal surface. When the block comes to rest momentarily, how does the decrease in mechanical energy of the block–surface–Earth system compare to that when the block slid over the horizontal surface?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- It is the same.
- It is larger.
- The relationship cannot be determined.
- It is smaller.

Question 3.

Quiz 8.11 What does the slope of a graph of $U(x)$ versus x represent?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the magnitude of the force on the object
- the negative of the x component of the force on the object.
- the x component of the force on the object
- the negative of the magnitude of the force on the object

PHYS-103-CHAP09-LECT13-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	6
Total Points	60

Question 1.

Quiz 9.1 Two objects have equal kinetic energies. How do the magnitudes of their momenta compare?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- $p_1 < p_2$
- $p_1 > p_2$
- not enough information to tell.
- $p_1 = p_2$

Question 2.

Quiz 9.2 Your physical education teacher throws a baseball to you at a certain speed, and you catch it. The teacher is next going to throw you a medicine ball whose mass is ten times the mass of the baseball. You are given the following choices:

You can have the medicine ball thrown with (a) the same speed as the baseball (b) the same momentum (c) the same kinetic energy. Rank these choices from easiest to hardest to catch.

(Type: Sequence, Points: 10, Attempts: 1)

#	Choice	Correct order
1	the same momentum	
2	the same speed as the baseball	
3	the same kinetic energy	

Question 3.

Quiz 9.3 A ball is released and falls toward the ground with no air resistance. The isolated system for which momentum is conserved is:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the ball
- the Earth
- the ball and the Earth
- impossible to determine.

Question 4.

Quiz 9.4 A car and a large truck traveling at the same speed make a head-on collision and stick together. Which vehicle experiences the larger change in the magnitude of momentum?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the car
- the truck
- The change in the magnitude of momentum is the same for both
- impossible to determine.

Question 5.

Quiz 9.5 Two objects are at rest on a frictionless surface. Object 1 has a greater mass than object 2. When a constant force is applied to object 1, it accelerates through a distance d . The force is removed from object 1 and is applied to object 2. At

the moment when object 2 has accelerated through the same distance d , which statements are true?

(Type: Multiple Response, Points: 10, Attempts: 1)

- $p_1 < p_2$
- $K_1 = K_2$
- $p_1 = p_2$
- $K_1 > K_2$.
- $K_1 < K_2$
- $p_1 > p_2$

Question 6.

Quiz 9.6 Two objects are at rest on a frictionless surface. Object 1 has a greater mass than object 2. When a force is applied to object 1, it accelerates for a time interval t . The force is removed from object 1 and is applied to object 2. After object 2 has accelerated for the same time interval t , which statements are true?

(Type: Multiple Response, Points: 10, Attempts: 1)

- $p_1 < p_2$
- $K_1 = K_2$
- $p_1 > p_2$
- $K_1 > K_2$.
- $p_1 = p_2$
- $K_1 < K_2$

PHYS-103-CHAP09-LECT14-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	2
Total Points	20

Question 1.

Quiz 9.8 In a perfectly inelastic one-dimensional collision between two objects, what condition alone is necessary so that all of the original kinetic energy of the system is gone after the collision?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- The objects must have momenta with the same magnitude but opposite directions.
- The objects must have the same speed, with velocity vectors in opposite directions.
- The objects must have the same mass.
- The objects must have the same velocity.

Question 2.

Quiz 9.9 A table-tennis ball is thrown at a stationary bowling ball. The table-tennis ball makes a one-dimensional elastic collision and bounces back along the same line. After the collision, compared to the bowling ball, the table-tennis ball has:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- a larger magnitude of momentum and more kinetic energy
- the same magnitude of momentum and the same kinetic energy.
- a smaller magnitude of momentum and more kinetic energy
- a larger magnitude of momentum and less kinetic energy
- a smaller magnitude of momentum and less kinetic energy

PHYS-103-CHAP09-LECT15-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	1
Total Points	10

Question 1.

Quiz 9.10 A baseball bat is cut at the location of its center of mass as shown in Figure . The piece with the smaller mass is:



(Type: Multiple Choice, Points: 10, Attempts: 1)

- the piece on the right
- impossible to determine.
- Both pieces have the same mass.

the piece on the left

PHYS-103-CHAP10-LECT16-Quiz01-V01

Quiz Settings	Value
Type	Graded
Total Questions	4
Total Points	40

Question 1.

Quiz 10.1 A rigid object is rotating in a counterclockwise sense around a fixed axis. Each of the following pairs of quantities represents an initial angular position and a final angular position of the rigid object. Which of the sets can only occur if the rigid object rotates through more than 180° ?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- 3 rad, 6 rad
- 1 rad, 5 rad.
- 1 rad, 1 rad

Question 2.

Quiz 10.5 Andy and Charlie are riding on a merry-go-round. Andy rides on a horse at the outer rim of the circular platform, twice as far from the center of the circular platform as Charlie, who rides on an inner horse. When the merry-go-round is rotating at a constant angular speed, Andy's angular speed is:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- twice Charlie's
- impossible to determine.
- the same as Charlie's
- half of Charlie's

Question 3.

Quiz 10.6 Consider again the merry-go-round situation in Quick Quiz 10.5. When the merry-go-round is rotating at a constant angular speed, Andy's tangential speed is:

(Type: Multiple Choice, Points: 10, Attempts: 1)

- twice Charlie's
- impossible to determine.

- the same as Charlie's
- half of Charlie's

Question 4.

Quiz 10.7 A section of hollow pipe and a solid cylinder have the same radius, mass, and length. They both rotate about their long central axes with the same angular speed. Which object has the higher rotational kinetic energy?

(Type: Multiple Choice, Points: 10, Attempts: 1)

- the hollow pipe
- impossible to determine.
- the solid cylinder
- they have the same rotational kinetic energy