This chapter has 55 questions.
Scroll down to see and select individual questions or narrow the list using the checkboxes below.

Select 0 questions at random and keep in order

- ☐ *Multiple Choice Questions* - (49)
- ☐ *Fill In The Blank Questions* - (6)
- ☐ *Odd Numbered* - (28)
- ☐ *Even Numbered* - (27)
- ☐ Accessibility: Keyboard Navigation - (46)
- ☐ Difficulty: Easy - (31)
- ☐ Difficulty: Hard - (8)
- ☐ Difficulty: Medium - (14)
- ☐ Gradable: automatic - (55)
- ☐ Topic: Acceleration Due to Gravity - (10)
- ☐ Topic: Beyond Free Fall: Throwing a Ball Upward - (12)
- ☐ Topic: Hitting a Target - (9)
- ☐ Topic: Projectile Motion - (9)
- ☐ Topic: Tracking a Falling Object - (13)
- ☐ Type: Conceptual - (28)
- ☐ Type: Definition - (6)
- ☐ Type: Graphical - (3)
- ☐ Type: Numerical - (24)

1. Neglecting friction, if a Cadillac and Volkswagen start rolling down a hill together, the heavier Cadillac will get to the bottom
   - ○ before the Volkswagen.
   - ○ after the Volkswagen.
   - → ○ at the same time as the Volkswagen.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Acceleration Due to Gravity
MC Neglecting friction, if a Cadillac and Volks...
Type: Conceptual

2. A bullet is fired straight down from a hovering helicopter. If we neglect air friction, then the velocity of the bullet
   - → ○ increases at 9.8 m/s each second.
   - ○ is a constant.
   - ○ is zero.
   - ○ decreases at 9.8 ft/s during the flight.

Select

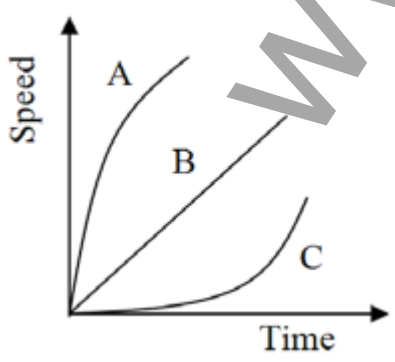
Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Tracking a Falling Object
MC A bullet is fired straight down from a hover...
Type: Conceptual

3. Suppose you throw a ball vertically downward with a speed of 10 m/s. Neglecting air friction, what would be the speed of the ball one second later?
   - ○ -9.8 m/s^2
   - ○ 9.8 m/s^2
   - ○ 15 m/s
   - → ○ 19.8 m/s
   - ○ 24.8 m/s

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Tracking a Falling Object
MC Suppose you throw a ball vertically downward...
Type: Numerical

4. Which of the curves in the figure best shows the speed of an object falling from rest without air friction?



Select

   - ○ A
   - ○ B
   - → ○ C

Difficulty: Easy
Gradable: automatic
Topic: Tracking a Falling Object
Multiple Choice Question
Type: Conceptual
MC Which of the curves in the figure best shows...
Type: Graphical

Select

5. If you drop a ball in the absence of air resistance, it accelerates downward at 9.8 m/s^2. If instead you throw the ball upward, then its downward acceleration after release is
   - ○ less than 9.8 m/s^2.
   - → ○ equal to 9.8 m/s^2.
   - ○

greater than 9.8 m/s^2.

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Multiple Choice Question
Topic: Beyond Free Fall: Throwing a Ball Upward
MC If you drop a ball in the absence of air res...
Type: Conceptual

6. A person standing at the edge of a cliff throws one rock straight up and another rock straight down at the same initial speed. The rock that was thrown _____ has less speed at impact.
   - ○ upward
   - ○ downward
   - → ○ Actually, each rock has the same speed just before impact.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Multiple Choice Question
Type: Conceptual
MC A person standing at the edge of a cliff thr...

7. You toss a ball straight up in the air. At the highest point, the ball's
   - ○ velocity and acceleration are zero.
   - ○ acceleration is zero but not its velocity.
   - → ○ velocity is zero and the acceleration is downward.
   - ○ velocity is zero and the acceleration is upward.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Beyond Free Fall: Throwing a Ball Upward
MC You toss a ball straight up in the air. At t...
Type: Conceptual

8. (Ignore air friction for this problem.) Two identical balls are thrown simultaneously from the top of a very tall cliff. Ball A is thrown downward with an initial velocity of 6 m/s, while ball B is thrown straight upward with an initial velocity of 9.8 m/s. After one second has elapsed, the
   - ○ acceleration of ball A is upward.
   - ○ velocity of ball A is 9.8 m/sec^2.
   - ○ acceleration of ball A is greater than that of ball B.
   - → ○ velocity of ball B is zero.
   - ○ acceleration of both balls is zero.

Select

Accessibility: Keyboard Navigation
Difficulty: Hard
Gradable: automatic
Multiple Choice Question
Topic: Beyond Free Fall: Throwing a Ball Upward
MC (Ignore air friction for this problem.) Two ...
Type: Numerical

9. A football is thrown upward at some angle above the horizontal. If we neglect air friction, then we can conclude that the acceleration vector of the football is
   - ○ opposite to the velocity vector.
   - ○ zero.
   - ○ along the direction of motion.
   - → ○ down.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Hitting a Target
MC A football is thrown upward at some angle ab...
Type: Conceptual

10. An iron robot falls from rest at a great height. Neglecting air resistance, what is its speed after it has fallen for 3.5 seconds?
    - ○ 9.8 m/s
    - ○ 9.8 m/s^2
    - ○ 13.3 m/s
    - → ○ 34.3 m/s

Select

Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Tracking a Falling Object
MC An iron robot falls from rest at a great hei...
Type: Numerical

Select

11. An iron robot falls from rest at a great height. Neglecting air resistance, what distance has it fallen in the first 3.5 seconds?
    - ○ 31 m
    - → ○ 60 m
    - ○ 49 m
    - ○ 98 m

Multiple Choice Question
Accessibility: Keyboard Navigation
MC An iron robot falls from rest at a great hei...
Difficulty: Easy

Gradable: automatic
Topic: Tracking a Falling Object
Type: Numerical

12. The acceleration due to the Earth's gravity, in English units, is 32 ft/s^2. In the absence of air friction, a ball is dropped from rest. Its speed on striking the ground is exactly 60 miles/hr. For what time interval was the ball falling? (There are 5280 feet in one mile.)

Select

- ○ 5 s
- ○ 6.1 s
- → ○ 4.125 s
- ○ 2.75 s

Accessibility: Keyboard Navigation
Difficulty: Hard
Gradable: automatic
Multiple Choice Question
Topic: Tracking a Falling Object
MC The acceleration due to the Earth's gravity...
Type: Numerical

13. The acceleration due to the Earth's gravity, in English units, is 32 ft/s^2. In the absence of air friction, a ball is dropped from rest. Its speed on striking the ground is exactly 132 ft/s. From what height was the ball dropped?

Select

- ○ 165 ft
- → ○ 272 ft
- ○ 132 ft
- ○ 421 ft

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Multiple Choice Question
Topic: Tracking a Falling Object
MC The acceleration due to the Earth's gravity...
Type: Numerical

14. In a laboratory on Earth, all the air is pumped from a large tube. A feather and a steel ball are simultaneously released from rest inside the tube. What happens next?

Select

- ○ Both objects float weightless inside the tube.
- ○ The steel ball falls and hits the bottom before the feather.
- ○ The feather falls and hits the bottom before the steel ball.
- → ○ Both objects fall and hit the bottom at the same time.

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Acceleration Due to Gravity
MC In a laboratory on Earth, all the air is pum...
Type: Conceptual

15. In order to find the depth of a well, you drop a stone into it and time its fall. It hits the water after falling for 1.5 s. The depth of the well is about

Select

- ○ 7.35 m.
- → ○ 11 m.
- ○ 14 m.
- ○ 20 m.

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Tracking a Falling Object
MC In order to find the depth of a well, you dr...
Type: Numerical

16. A stone is thrown upward from a bridge at a speed of 10 m/s. It narrowly misses the bridge on the way back down and hits the water at 30 m/s. The bridge is about

Select

- ○ 3 m high.
- ○ 20 m high.
- ○ 50.5 m high.
- → ○ 76.5 m high.

Accessibility: Keyboard Navigation
Difficulty: Hard
Gradable: automatic
Multiple Choice Question
Topic: Beyond Free Fall: Throwing a Ball Upward
MC A stone is thrown upward from a bridge at a ...
Type: Numerical

Select 17. A 10 kg object dropped from a certain window strikes the ground in 4.0 s. Neglecting air resistance, a 5 kg object dropped from the same window strikes the ground in

- ○ 1.0 s.
- ○ 2.0 s.
- → ○ 4.0 s.
- ○ 8.0 s.

Multiple Choice Question
MC A 10 kg object dropped from a certain window...

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Acceleration Due to Gravity
Type: Numerical

18. An object rises at 5.0 m/s under the influence of gravity only. One second later the object is

- ○ rising at 4.8 m/s.
- ○ rising at 5 m/s.
- ○ neither rising nor falling.
- → ○ falling at 4.8 m/s.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Beyond Free Fall: Throwing a Ball Upward
Type: Numerical

Multiple Choice Question
MC An object rises at 5 m/s under the influence...

19. A rifle bullet is fired horizontally at the same instant another bullet is allowed to drop from rest at the same height. Which bullet strikes the earth first?

- ○ The bullet from the rifle
- ○ The bullet allowed to drop
- → ○ Both strike at the same instant.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Projectile Motion
Type: Conceptual

Multiple Choice Question
MC A rifle bullet is fired horizontally at the ...

20. A ball is thrown straight up. It reaches its highest point and then falls back. Which of the following is the correct statement?

- ○ Throughout its motion, the ball's velocity is zero.
- ○ At the highest point in its motion, the ball's acceleration is zero.
- → ○ At the highest point in its motion, the ball's velocity is zero.
- ○ Throughout its motion, the ball's acceleration is zero.
- ○ At the highest point in its motion, the ball's velocity and acceleration are zero.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Beyond Free Fall: Throwing a Ball Upward
Type: Conceptual

Multiple Choice Question
MC A ball is thrown straight up. It reaches its...

21. A body released from rest falls with an acceleration of 9.8 m/s^2. If the same body is thrown upward at an angle, and air resistance is negligible, its acceleration after release will be

- ○ downward and less than 9.8 m/s^2.
- → ○ downward and equal to 9.8 m/s^2.
- ○ downward and greater than 9.8 m/s^2.
- ○ upward and equal to 9.8 m/s^2.
- ○ upward and greater than 9.8 m/s^2.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Topic: Hitting a Target
Type: Conceptual

Multiple Choice Question
MC A body released from rest falls with an acce...

22. The acceleration of a body is given by the slope of a graph plotting

- ○ distance travelled versus time.
- ○ time versus velocity.
- ○ velocity versus distance travelled.
- → ○ velocity versus time.
- ○ time versus distance travelled.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Type: Definition

Multiple Choice Question
MC The acceleration of a body is given by the s...

23. If air resistance can be ignored, which of the following graphs will be a straight line for a falling object?

- ○ Distance travelled versus time.
- ○ Distance travelled versus velocity.
- ○ Time versus distance travelled.
- → ○ Velocity versus time.
- ○ Velocity versus distance travelled.

Select

Multiple Choice Question
MC If air resistance can be ignored, which of t...

Accessibility: Keyboard Navigation
Difficulty: Hard
Gradable: automatic
Topic: Acceleration Due to Gravity
Type: Conceptual
Type: Definition

24. A ball is allowed to drop from rest. If the upward direction is positive, then after 2 seconds its velocity will be

→ ○ -19.6 m/s.
○ -9.8 m/s.
○ 9.8 m/s.
○ 19.6 m/s.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Tracking a Falling Object
Type: Numerical

Multiple Choice Question
MC A ball is allowed to drop from rest. If the ...

25. After 1 second, a ball dropped from rest will have fallen

○ 1.0 m.
○ 2.45 m.
→ ○ 4.9 m.
○ 9.8 m.
○ 19.6 m.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Tracking a Falling Object
Type: Numerical

Multiple Choice Question
MC After 1 second, a ball dropped from rest wil...

26. A ball is thrown straight up with an initial velocity of 10 m/s. After 3 seconds its velocity will be

→ ○ -19.4 m/s.
○ -29.4 m/s.
○ 0 m/s.
○ 29.4 m/s.
○ 19.4 m/s.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Beyond Free Fall: Throwing a Ball Upward
Type: Numerical

Multiple Choice Question
MC A ball is projected straight up with an init...

27. A ball is projected upward with an initial velocity of 10 m/s. It will reach its maximum height in approximately

→ ○ 1 s.
○ 1.5 s.
○ 2 s.
○ 2.5 s.
○ 3 s.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Topic: Beyond Free Fall: Throwing a Ball Upward
Type: Numerical

Multiple Choice Question
MC A ball is projected upward with an initial v...

28. A ball thrown upward reaches its maximum height and then falls back. If air resistance is negligible, its acceleration is

○ less on the way up than on the way down.
○ less on the way down than on the way up.
○ the same up and down but zero at the top.
→ ○ the same at all points in the motion.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Beyond Free Fall: Throwing a Ball Upward
Type: Conceptual

Multiple Choice Question
MC A ball thrown upward reaches its maximum hei...

29. Ball A is thrown upward with a velocity of 19.6 m/s. Two seconds later ball B is thrown upward with a velocity of 9.8 m/s. Which ball is first to return to the thrower's hand?

○ A will arrive first.
→ ○ A and B will arrive at the same time.
○ B will arrive first.

Select

Accessibility: Keyboard Navigation
Difficulty: Hard

Multiple Choice Question
MC Ball A is thrown upward with a velocity of 1...

Gradable: automatic
Topic: Beyond Free Fall: Throwing a Ball Upward
Type: Numerical

30. A bullet is fired horizontally at a target 20 m away. The velocity of the bullet as it leaves the gun is 200 m/s. How much, approximately, will the bullet drop on its way to the target?

→ ○ 0.05 m
○ 0.1 m
○ 0.2 m
○ 0.3 m
○ 0.4 m

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Topic: Projectile Motion
Type: Numerical

Multiple Choice Question
MC A bullet is fired horizontally at a target 2...

31. During the first 5 seconds after a ball is dropped from rest, how far will it fall?

○ 25 m
○ 61.3 m
→ ○ 122.5 m
○ 245 m
○ 490 m

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Tracking a Falling Object
Type: Numerical

Multiple Choice Question
MC During the first 10 seconds after a ball is ...

32. A 10 pound iron ball and a 2 pound iron ball are dropped simultaneously from a height of 100 meters. Neglecting air resistance, which ball will reach the ground first?

○ The 10 lb ball
○ The 2 lb ball
→ ○ They will reach the ground at the same time.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Acceleration Due to Gravity
Type: Conceptual

Multiple Choice Question
MC A 10 pound iron ball and a 2 pound iron ball...

33. A man standing on a bridge throws a stone horizontally with a speed of 20 m/s. The stone hits the water below 2.5 s later. The bridge is

○ 44.1 m high.
○ 60.1 m high.
→ ○ 30.6 m high.
○ 20.3 m high.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Topic: Projectile Motion
Type: Numerical

Multiple Choice Question
MC A man standing on a bridge throws a stone ho...

34. The motion of a falling object is commonly investigated with the aid of a

○ stethoscope.
○ microscope.
○ kaleidoscope.
→ ○ stroboscope.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Acceleration Due to Gravity
Type: Definition

Multiple Choice Question
MC The motion of a falling object is commonly i...

35. A ball rolls off a shelf and hits the floor below 0.25 second later. To find the speed of the ball as it left the shelf, we would need

→ ○ the distance measured along the floor to the point of impact.
○ to repeat the experiment.
○ the height of the table.
○ the weight of the ball.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic

Multiple Choice Question
MC A ball rolls off a shelf and hits the floor ...

Topic: Projectile Motion
Type: Conceptual

36. Assuming g = 10 m/s^2 and that air resistance is negligible, in 1/2 second a ball dropped from rest will fall
- ○ 0.3 m.
- ○ 0.8 m.
- ○ 1.0 m.
- → ○ 1.25 m.
- ○ 2.25 m.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Tracking a Falling Object
MC Assuming g = 10 m/s2 and that air resistance...
Type: Numerical

37. One day while measuring acceleration with his pulse as a timing source, Galileo became so excited that his pulse rate increased. His results for acceleration that day were probably
- → ○ higher than usual.
- ○ lower than usual.
- ○ more accurate than usual.
- ○ unchanged.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Multiple Choice Question
Topic: Acceleration Due to Gravity
MC One day while measuring acceleration with hi...
Type: Conceptual

38. A ball is thrown across the street. During its flight, the ball's speed is lowest at
- ○ the beginning of its flight.
- ○ the end of its flight.
- → ○ the highest point of its flight.
- ○ the speed is constant throughout the flight.

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Projectile Motion
MC A ball is thrown across the street. During i...
Type: Conceptual

39. Which of the following does not move like a projectile?
- ○ A monkey jumping from a tree
- ○ The seeds at a watermelon seed spitting contest
- → ○ An airplane flying at a constant altitude
- ○ A rock kicked up by a truck wheel

Select

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Multiple Choice Question
Topic: Projectile Motion
MC Which of the following does not move like a ...
Type: Conceptual

40. The acceleration due to gravity near the surface of the Moon is about one-sixth of the value near the Earth's surface. If a rock were dropped from equal heights on the Moon and Earth, the time it would take the rock from the Moon to hit the ground would be
- ○ six times longer than on Earth.
- → ○ the square root of six times longer than on Earth.
- ○ the same time as on Earth.
- ○ the square root of six times shorter than on Earth.
- ○ six times shorter than on Earth.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Multiple Choice Question
Topic: Acceleration Due to Gravity
MC The acceleration due to gravity near the sur...
Type: Numerical

41. The acceleration due to gravity near the surface of Mars is about one-third of the value near the Earth's surface. If a rock fell from rest for the same amount of time on Mars and Earth, the final speed of the rock would be
- ○ three times faster than on Earth.
- ○ the square root of three times faster than on Earth.
- ○ the same speed as on Earth.
- ○ the square root of three times slower than on Earth.
- → ○ three times slower than on Earth.

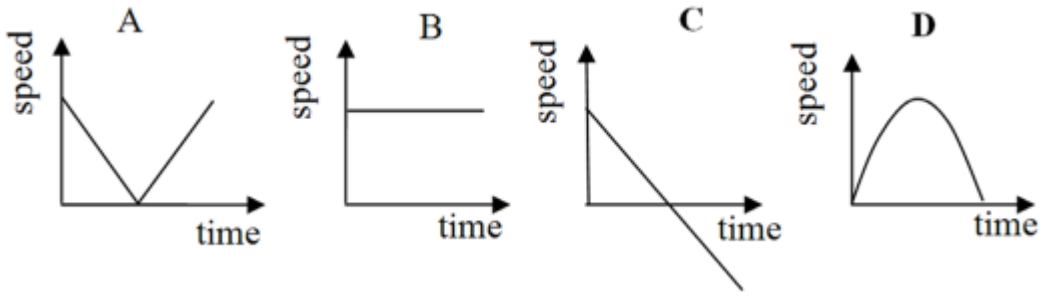
Select

Multiple Choice Question
MC The acceleration due to gravity near the sur...

Accessibility: Keyboard Navigation
Difficulty: Easy

Gradable: automatic
Topic: Acceleration Due to Gravity
Type: Numerical

42. Which of these graphs would be correct for the speed of a ball thrown upward?



Select

- ○ A
- ○ B
- → ○ C
- ○ D

Difficulty: Easy
Gradable: automatic
Topic: Beyond Free Fall: Throwing a Ball Upward
Multiple Choice Question
Type: Conceptual
MC Which of these graphs would be correct for t...
Type: Graphical

43. Two people stand on different floors of an outdoor stairway. One is 6 m above the ground and the other is 12 m above the ground. The person on the lower floor throws a ball upward with a speed of 15 m/s and the other person just drops here. Ignoring air resistance, which ball hits the ground at a higher speed?

- → ○ The one thrown upward.
- ○ The one that is dropped.
- ○ They both hit the ground with the same speed.

Select

Accessibility: Keyboard Navigation
Difficulty: Hard
Gradable: automatic
Multiple Choice Question
Topic: Beyond Free Fall: Throwing a Ball Upward
MC Two people stand on different floors of an o...
Type: Numerical

44. A ball is thrown at an upward angle. The horizontal speed of the ball is 20 m/s and the ball covers a distance of 10 m. The maximum height of the arc through which the ball travels is

- ○ 1.2 m.
- ○ 4.9 m.
- ○ 10 m.
- → ○ It cannot be determined from this information.

Select

Accessibility: Keyboard Navigation
Difficulty: Hard
Gradable: automatic
Multiple Choice Question
Topic: Hitting a Target
MC A ball is thrown at an upward angle. The hor...
Type: Numerical

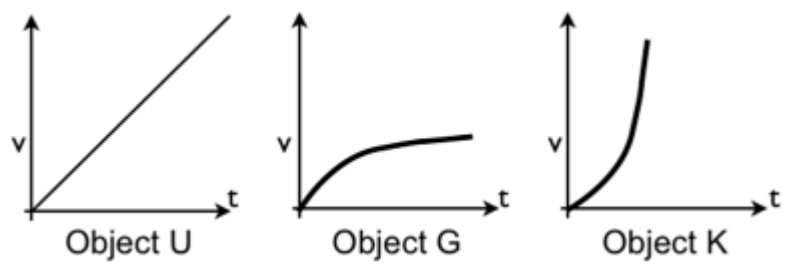
45. Two projectiles are launched 50° above horizontal but with different initial speeds. Which of the following must be true while the projectiles are in the air? (Ignore air resistance.)

- ○ The projectiles will reach the same maximum height.
- ○ The horizontal speeds of both projectiles are the same.
- → ○ The horizontal accelerations of both projectiles are the same: zero.
- ○ The one with larger initial speed will experience a larger vertical acceleration.

Select

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Multiple Choice Question
Topic: Hitting a Target
MC Two projectiles are launched 50° above h...
Type: Conceptual

Select 46. Which of the three curves show the speed of an object that is beginning to experience significant air resistance?



- ○ Object U
- → ○ Object G
- ○ Object K

Multiple Choice Question
MC Which of the three curves show the speed of ...

Difficulty: Medium
Gradable: automatic
Topic: Tracking a Falling Object
Type: Conceptual
Type: Graphical

47. To get a clean "swish"—nothing but net—on the basketball floor, you must shoot the ball so that its velocity vector is at least _____ above horizontal when it gets to the hoop.

Select

- ○ 45°
- ○ 58°
- → ○ 32°
- ○ 30°

Accessibility: Keyboard Navigation
Multiple Choice Question
MC To get a clean "swish"...
Gradable: automatic
Topic: Hitting a Target

48. For identical cannons and identical projectiles and identical initial speeds, but different pointing angles, the maximum distance for its projectile is attained for the cannon which launches at

Select

- ○ 32° above horizontal.
- → ○ 45° above horizontal.
- ○ either 32° or 58° above horizontal.
- ○ zero degrees—a flat trajectory.

Accessibility: Keyboard Navigation
Difficulty: Easy
Gradable: automatic
Topic: Hitting a Target
Type: Conceptual
Multiple Choice Question
MC For identical cannons and identical projecti...
Type: Definition

49. A baseball pitcher throws a fastball at 98 mph. He also has a slower "changeup" pitch, 75 mph, which he throws identically, same windup and same release angle from shoulder height. Which pitch gets to home plate with a flatter trajectory—i.e., velocity vector closer to horizontal?

Select

- → ○ The fastball
- ○ The changeup
- ○ They each have same trajectory, since the distance to home plate is the same.

Accessibility: Keyboard Navigation
Difficulty: Medium
Gradable: automatic
Multiple Choice Question
MC A baseball pitcher throws a fastball at 98 m...
Topic: Hitting a Target
Type: Conceptual

50. During batting practice, two baseballs have the same speed when leaving the bat of Babe Ruth. One ball goes over the outfield fence for a home run, and the other can be caught by an infielder. The difference between the two swings is that the home run ball starts out _____ to 45°.

Select

closer

Gradable: automatic
Fill-in-the-Blank Question
FB During batting practice, two baseballs have ...
Topic: Hitting a Target
Type: Conceptual

51. A body whose velocity increases by a constant amount each second is exhibiting motion for which the _____ is constant.

Select

acceleration

Difficulty: Easy
Gradable: automatic
Topic: Acceleration Due to Gravity
Fill-in-the-Blank Question
FB A body whose velocity increases by a constan...
Type: Conceptual
Type: Definition

52. For a bullet fired horizontally, its _____ velocity will retain a constant non-zero value until it is stopped.

Select

horizontal

Difficulty: Easy
Gradable: automatic
Fill-in-the-Blank Question
FB For a bullet fired horizontally, its _____...
Topic: Projectile Motion
Type: Conceptual

53. The time of flight of a projectile, fired horizontally over level ground, is independent of its horizontal _____.

Select

velocity

Difficulty: Medium
Gradable: automatic
Fill-in-the-Blank Question
FB The time of flight of a projectile, fired ho...
Topic: Projectile Motion
Type: Conceptual

Select

54. A football is kicked at an angle, giving it a horizontal velocity of 25 m/s. At the highest point in its path, the football will have a velocity of _____ m/s and a horizontal acceleration of _____ m/s^2.

25 and zero

Difficulty: Hard
Gradable: automatic
Topic: Hitting a Target
Type: Numerical

Fill-in-the-Blank Question
FB A football is kicked at an angle, giving it ...

55. A _____ is a body whose only acceleration is the downward acceleration due to gravity.

projectile

Select

Difficulty: Easy
Gradable: automatic
Topic: Projectile Motion
Type: Conceptual
Type: Definition

Fill-in-the-Blank Question
FB A _____ is a body whose only accelerat...