Biomechanics of Sport and Exercise 4th edition McGinnis Test Bank

SKU: 9781492592334-TEST-BANK

1. Chapter 2 Test
At 3 s into a run, a football player is traveling at +3 m/s. Four seconds later, the player is traveling at -5 m/s. v_f is equal to

a. 0 m/s
b. 3 m/s
c. 5 m/s
d. -3 m/s
*e. -5 m/s

2. Chapter 2 Test 2
Velocity is calculated as

a. distance divided by time
*b. displacement divided by time
c. force divided by time
d. force times distance
e. force divided by distance

3. Chapter 2 Test 3
Which type of motion describes the flight of a softball after it leaves the bat and sails in an arc over the outfield fence?

a. linear motion
*b. curvilinear motion
c. angular motion
d. rectilinear motion
e. recticurvi motion

4. Chapter 2 Test 4
If an object's initial coordinates are (3, 5, 0), and the final coordinates are (6, -2, -4), what is the object's displacement?

a. 3 units right, 3 units down, and 4 units forward
b. 3 units left, 7 units up, and 4 units forward
c. 9 units right, 7 units down, and 4 units backward
*d. 3 units right, 7 units down, and 4 units backward
e. need more information to calculate

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5. Chapter 2 Test 5
A softball is fouled off with a vertical velocity of 20 m/s and a horizontal velocity of 15 m/s. What is the resultant velocity of the ball?

a. 20 m/s
*b. 25 m/s
c. 30 m/s
d. 625 m/s
e. need more information to calculate

6. Chapter 2 Test 6
A softball is hit at a 30° angle from horizontal. Its vertical velocity component is 40 mi/h. What is the resultant velocity of the ball?

a. 20 mi/h
b. 40 mi/h
c. 60 mi/h
d. 80 mi/h
*e. need more information to calculate

7. Chapter 2 Test 7
At 3 s into a run, a football player is traveling at +3 m/s. Four seconds later, the player is traveling at -5 m/s. v_i is equal to

a. 0 m/s
*b. 3 m/s
c. 5 m/s
d. -3 m/s
e. -5 m/s

8. Chapter 2 Test 8
At 3 s into a run, a football player is traveling at +3 m/s. Four seconds later, the player is traveling at -5 m/s. The change in velocity (Δv) is equal to

a. +2 m/s
b. -2 m/s
c. +3 m/s
*d. -8 m/s
e. +8 m/s

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9. Chapter 2 Test 9
At 3 s into a run, a football player is traveling at +3 m/s. Four seconds later, the player is traveling at -5 m/s. The change in time (Δt) is equal to

a. 1 s
b. 2 s
c. 3 s
*d. 4 s
e. 7 s

10. Chapter 2 Test10
At 3 s into a run, a football player is traveling at +3 m/s. Four seconds later, the player is traveling at -5 m/s. The acceleration of the football player is

a. +0.5
b. -0.5
c. +2.0
*d. -2.0
e. need more information to calculate

11. Chapter 2 Test11
Units of acceleration are

a. s
b. m
c. m/s
*d. m/s^2
e. mi/h

13. Chapter 2 Test13
When a runner has completed one full lap around a 400 m track, what is the runner's displacement with respect to the starting position?

a. 400 m
b. 400 m multiplied by 2π
*c. zero
d. need more information to calculate

14. Chapter 2 Test14
When a runner has completed one full lap around a 400 m track, what is the runner's distance with respect to the starting position?

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*a. 400 m
b. 400 m multiplied by 2π
c. zero
d. need more information to calculate

15. Chapter 2 Test15
Which of the following is not a vector quantity?

a. distance
b. speed
c. neither a nor b
*d. both a and b

16. Chapter 2 Test16
What is the average speed of a cyclist who covers -15 mi in 30 min?

a. 5 mi/h
b. 10 mi/h
*c. 30 mi/h
d. 60 mi/h
e. need more information to calculate

17. Chapter 2 Test17
Which of the following pairs of quantities are expressed in the same units of measure?

a. friction and weight
b. speed and velocity
*c. both a and b
d. neither a nor b

18. Chapter 2 Test18
Velocity is to displacement as speed is to

a. length
b. acceleration
c. velocity
*d. distance
e. direction

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19. Chapter 2 Test19
A swimmer is traveling with an average velocity of -3.2 m/s. How far does the swimmer travel in 3 s?

a. 1.1 m
b. 6.9 m
*c. 9.6 m
d. A swimmer cannot travel in the negative direction.
e. need more information to calculate

20. Chapter 2 Test20
The winning times in the women's long- and short-track speed skating events at the 2002 Olympic Winter Games are shown below. Which athlete skated with the fastest average speed?
SHORT TRACK
500 m, 44.187 s, Yang Yang a
1000 m, 96.391 s, Yang Yang a
1500 m, 151.581 s, Gi-Hyun Ko
LONG TRACK
500 m, 37.30 s, Catriona LeMay-Doan
1000 m, 73.83 s, Chris Witty
1500 m, 114.02 s, Anni Freisinger

Correct Answer:
Long track 1000 m, Chris Witty

21. Chapter 2 Test21
The horizontal velocity of Serena's tennis serve is measured as 112 mi/h (50 m/s). Horizontally, the ball travels 82 ft (25 m) before reaching Venus (Serena's opponent). If the ball didn't slow down when it bounced or because of air resistance, how long would it take to reach Venus?

a. 0.25 s
b. 0.75 s
*c. 0.50 s
d. 1.0 s
e. 2.0 s

22. Chapter 2 Test22
Which category of motion encompasses most human movement?

a. linear

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b. curvilinear
c. rotational
*d. general
e. redundant

23. Chapter 2 Test23
What factor differentiates velocity from speed?

a. magnitude
*b. direction
c. force
d. acceleration
e. It depends on the application.

24. Chapter 2 Test24
Acceleration describes the time rate of change of

a. inertia
b. distance
c. direction
d. displacement
*e. velocity

25. Chapter 2 Test25
What is the velocity of an object that moves 100 m in 10 s?

a. 1000 m/s
b. 100 m/s
*c. 10 m/s
d. 1 m/s
e. 5 m/s

26. Chapter 2 Test26
Which of the following explains why a positive acceleration does NOT always indicate an increase in the magnitude of velocity?

a. Gravity is usually negative.
*b. Acceleration of a body can reflect a change in the velocity direction.
c. Acceleration is calculated from instantaneous velocity, and that value is typically positive.
d. Horizontal velocity is independent of gravity.

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e. Positive acceleration always does indicate an increase in the magnitude of velocity.

27. Chapter 2 Test27
In mechanics, *acceleration* may be used to describe

a. a change in motion of a body at rest or in motion
b. an increase in speed of a body at rest
c. a change in direction of a moving body
*d. all of the above
e. none of the above

28. Chapter 2 Test28
If a body has an initial velocity of -20.00 m/s and it experiences an acceleration of -9.81 m/s^2 for 2 s, which of the following statements is true?

*a. The magnitude of the velocity will increase.
b. The direction of motion will be reversed.
c. The displacement will be positive.
d. The body will have a final velocity of 20 m/s.
e. All of the above are true.

29. Chapter 2 Test29
A pole-vaulter clears a crossbar and takes 1.0 s to fall from the apex of his flight to the landing pit. What was his vertical velocity at the end of this second?

a. 4.9 m/s downward
*b. 9.81 m/s downward
c. 1.0 m/s downward
d. 19.62 m/s downward
e. 9.81 m/s^2 downward

30. Chapter 2 Test30
A pole-vaulter clears a crossbar and takes 1.0 s to fall from the apex of his flight to the landing pit. How far did he fall during this second?

*a. 4.9 m
b. 9.81 m
c. 1.0 m
d. 19.62 m

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e. 6.0 m

31. Chapter 2 Test31
A pole-vaulter clears a crossbar and falls 4.9 m from the apex of his flight to the landing pit. How long did it take him to fall this 4.9 m?

a. 0.15 s
*b. 0.50 s
c. 1.00 s
d. 2.00 s
e. need more information to calculate

32. Chapter 2 Test32
The left fielder throws the baseball home from 60 m away. The ball's horizontal velocity is 30 m/s, and its vertical velocity is sufficient to keep it in the air until it reaches the catcher at home plate. At the same time, a base runner is running toward home plate. His velocity is 5 m/s, and he is 5 m from home plate. If the base runner's velocity stays constant and air resistance isn't a factor, which will arrive at home plate first, the base runner or the baseball?

Correct Answer:
The base runner

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