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CORRECT ANSWERS ARE LOCATED IN THE 2ND HALF OF THIS DOC.

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

1) If an electron and a proton have the same initial position at the same initial time, and the same final position at the same final time, then which velocity would always be the same for both?
   A) initial velocity
   B) final velocity
   C) average velocity
   D) instantaneous velocity

2) The position of a nanoparticle as a function of time is $x(t) = t^2 - t - 6$, where x is measured in meters, t is measured in seconds and $t > 0$. When is the speed of the nanoparticle zero?
   A) when $t = 0.5$ s
   B) when $t = 2$ s
   C) when $t = 3$ s
   D) The speed of the nanoparticle is never zero.

3) The position of a nanoparticle as a function of time is $x(t) = t^2 - t - 6$, where x is measured in meters, t is measured in seconds and $t > 0$. What is the minimum value of the nanoparticle's position?
   A) 6.00 m
   B) -6.00 m
   C) 6.25 m
   D) -6.25 m
   E) The nanoparticle does not have a minimum value for its position for t>0.
   F) None of the above are correct.

4) The graph of the position of a DNA molecule (on the vertical axis) vs. time (on the horizontal axis) is a straight line that does *not* go through the origin and does *not* have a slope of zero. Which statement is true?
   A) Its position is always zero.
   B) Its velocity is always zero.
   C) Its speed is always zero.
   D) Its acceleration is always zero.

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5) The graph of the position of a DNA molecule (on the vertical axis) vs. time (on the horizontal axis) is a straight line that does *not* go through the origin and does *not* have a slope of zero. Which statement is true?
   A) Its position is always zero.
   B) Its velocity is constant.
   C) Its speed is always zero.
   D) Its acceleration is not zero.

6) The graph of the velocity of a rocket (on the vertical axis) vs. time (on the horizontal axis) is a straight line that does *not* go through the origin and does *not* have a slope of zero. Which statement is true?
   A) Its position is always zero.
   B) Its velocity is constant.
   C) Its speed is always zero.
   D) Its acceleration is not zero.

7) The acceleration of a race car as a function of time is $a(t) = k\,t$, where k is a constant. If its velocity at $t = 0$ is 2 m/s, and its velocity is 26 m/s at $t = 2$ s, what is the value of the constant, k?
   A) 12 m/s^3
   B) 12 m/s^2
   C) 13 m/s^3
   D) 13 m/s^2
   E) 24 m/s^3
   F) 24 m/s^2

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8) A ball is thrown straight up into the air. It reaches the top of its path and then falls back down to its initial position. During its flight, when is it accelerating in the downward direction? Ignore air resistance.
   A) when it's moving up
   B) when it's moving down
   C) always
   D) never

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9) A ball is thrown straight up into the air, reaches the top of its path, and then falls back down to its initial position. During its flight, when is its speed greater than zero? Ignore air resistance.
   A) only when it's moving up
   B) only when it's moving down
   C) always
   D) never
   E) when it's moving up and when it's moving down

10) The driver of a car travels 150 miles to reach his destination. If he travels 60.0 mi/h for 100.0 miles and 55.0 mi/h for the remaining 50.0 miles, how long does it take for him to reach his destination?
   A) 1.58 hours
   B) 2.45 hours
   C) 2.58 hours
   D) 3.67 hours

11) The driver of a car travels 150 miles to reach his destination. If he travels 60.0 mi/h for 100 miles and 55.0 mi/h for the remaining 50.0 miles, what was his average velocity for the trip?
   A) 57.8 mi/h
   B) 58.2 mi/h
   C) 58.7 mi/h
   D) 59.0 mi/h

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12) Two girls stand at the edge of a cliff. One girl throws a stone upwards with a velocity of 10.0 m/s and the other throws her stone downwards at 10.0 m/s. If they threw them from the same height at the same time, which stone will have the greatest speed when it hits the ground?
   A) The stone that was thrown upward
   B) The stone that was thrown downward
   C) They will have the same speed.

13) The velocity of a car is given as $\omega = 2.50\ s^{-1}$m/s where $a = 2.0\ m/s^3$, t^2, and $c = 2.0\ m/s$. What is its acceleration at $t = 4.0\ s$?
   A) $15\ m/s^2$
   B) $18\ m/s^2$
   C) $20\ m/s^2$
   D) $32\ m/s^2$

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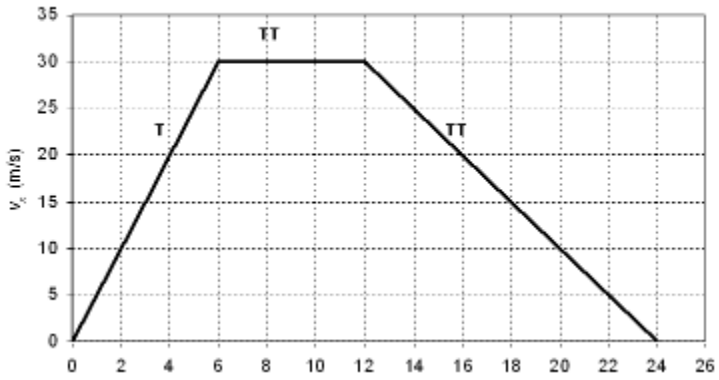
14) An Olympic runner starts from rest and accelerates at $2.00\ m/s^2$. Assume constant acceleration for the entire time. How far does he travel in 10.0 s?

A) 100 m
B) 500 m
C) 1000 m
D) 2000 m

15) A car travels north at 30 m/s for 10 minutes. It then travels south at 40 m/s for 20 minutes. The total distance the car travels and its displacement are, respectively,

A) 66 km and 30 km.
B) 30 km and 66 km.
C) 51 km and 9 km.
D) 9 km and 51 km.
E) 51 km and 30 km.

16) A fellow student found in the performance data of his new car the velocity-versus-time graph shown in the figure. The average acceleration of his car from second 0 to second 24 is



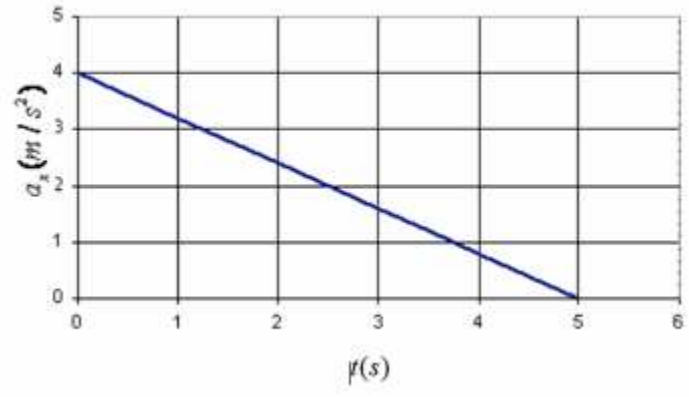
A) $5\ m/s^2$.
B) $2.5\ m/s^2$.
C) $0\ m/s^2$.
D) $-2.5\ m/s^2$.
E) $-5\ m/s^2$.

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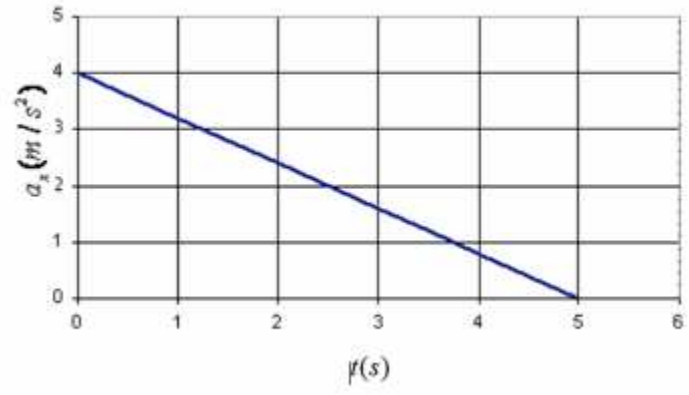
17) A car moving along the x direction has acceleration, a_x that varies with time as shown in the figure. At the moment, $t = 0$ s, the car is located at $x = 12$ m and has a velocity of 6 m/s in the positive x direction. What is the velocity of the car at $t = 4.0$ s?



A) 16 m/s
B) 15.6 m/s
C) 14.4 m/s
D) 0 m/s
E) -12.7 m/s

18) A car moving along the x direction has acceleration, a_x that varies with time as shown in the figure. At the moment, $t = 0$ s, the car is located at $x = 12$ m and has a velocity of 6 m/s in the positive x direction. What is the position of the car at $t = 4.0$ s?

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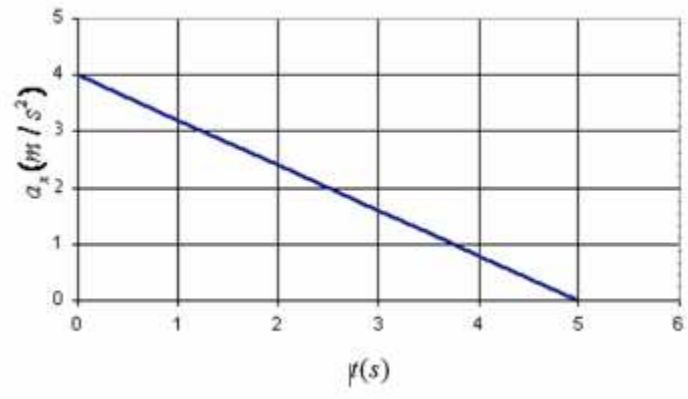
A) 59.5 m
B) 15.6 m
C) 76.5 m
D) -3.2 m
E) 21.6 m

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19) A car moving along the *x* direction has acceleration, a_x that varies with time as shown in the figure below. At the instant, $t = 0$ s, the car is located at $x = 12$ m and has a velocity of 6 m/s in the positive *x* direction. What is the displacement of the car between $t = 1.0$ s and $t = 2.0$ s?



A) 11.1 m
B) 5.6 m
C) 9.5 m
D) -0.8 m
E) 2.8 m

20) A bullet is fired through a board, 8.00 cm thick, with its line of motion perpendicular to the face of the board. If it enters with a speed of 300 m/s and emerges with a speed of 100 m/s, the bullet's acceleration as it passes through the board is

A) $-200,000\ m/s^2$.
B) $-300,000\ m/s^2$.
C) $-400,000\ m/s^2$.
D) $-500,000\ m/s^2$.
E) $-600,000\ m/s^2$.

21) A stone is thrown downward with an initial velocity of 5.00 m/s. The acceleration of the stone is constant and has the value of the free-fall acceleration, $9.81\ m/s^2$. The speed of the stone after 0.750 s is

A) 12.4 m/s.
B) 14.9 m/s.
C) 22.7 m/s.
D) 32.3 m/s.
E) 0 m/s.

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22) One of the following statements is false. Which one is it?
- A) The size of the displacement and the distance travelled can be the same.
- B) The size of the displacement is always less than or equal to the distance traveled.
- C) The size of the displacement and the distance travelled can be different from each other.
- D) The size of the displacement can be greater than the distance traveled.
- E) If a car only travels in a straight line without turning, the size of the displacement and the distance travelled are the same.

23) A particle moves in the one direction, stops, and then heads back in the opposite direction. The position of a particle (in meters) as a function of time is given by $x(t) = -3.65\ t^2 + 4.52\ t + 7.91$. The position of the particle where it stops is
- A) 0 m.
- B) 9.31 m.
- C) 11.7 m.
- D) -11.7 m.
- E) -9.31 m.

24) A car takes 60.0 minutes to travel 100 km. During this one-hour trip, the car stops for 5 minutes to get gas. The speed limit on the road that the car traveled on is 100 km/hr. Which of the following statements is true? TBEXAM.COM
- A) The car never exceeded the speed limit during this trip.
- B) The car must have exceeded the speed limit at some point during this trip.
- C) There is not enough information to determine whether the car exceeded the speed limit during this trip.
- D) The car's speed was 100 km/hr during the whole trip.

25) A 747 commercial jet liner moves down a runway at a constant acceleration, starting from rest and reaching the take-off speed of 285 km/hr after travelling 3400 m down the runway. The acceleration of the jet on the runway is
- A) $0.0233\ m/s^2$.
- B) $0.00248\ m/s^2$.
- C) $9.81\ m/s^2$.
- D) $1.84\ m/s^2$.
- E) $0.922\ m/s^2$.

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26) A golf ball is dropped from a height of 1.0 m onto a concrete floor. The velocity of the ball immediately before hitting the floor is 4.43 m/s downward. The ball contacts the floor for 0.940 ms (check out R. Cross, Am. J. Phys., Vol. 67, No. 3, March 1999) and leaves the floor traveling upward at 3.96 m/s. The average acceleration of the golf ball while it is in contact with the floor is

A) $9.81\ m/s^2$.
B) $8.93 \times 10^3\ m/s^2$.
C) $500\ m/s^2$.
D) $4.71 \times 10^3\ m/s^2$.
E) $4.21 \times 10^3\ m/s^2$.

27) If the position of an object (in meters) is given by the relation $x(t) = A\ \cos(\omega\ t)$, where A = 15.0 m and $\omega = 2.50\ s^{-1}$. How fast is the object moving at t = 4.00?

A) 6.51 m/s
B) 20.4 m/s
C) 31.6 m/s
D) 37.5 m/s
E) 150 m/s

28) A 1050 kg car is traveling at a speed of 25 m/s when the driver sees that there is a tree across the road. If the car has a constant deceleration of $-5.0\ m/s^2$ and the driver has a reaction time of 0.30 s, how far does the car travel before it comes to a stop?

A) 7.5 m
B) 8.0 m
C) 63 m
D) 70 m

29) A person fires a warning shot out of handgun. If the bullet leaves the gun with an initial speed of 305 m/s and travels straight upward, how much time does the person firing the gun have to move out of the way before the bullet hits the ground? (Ignore the effects of air resistance.)

A) 15.6 s
B) 31.1 s
C) 62.2 s
D) None are correct.

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30) In the classic book by Jules Verne, Phileas Fogg travels around the world in 80 days. Leaving London, heading east, and arriving back in London 80 days later from the west. If the radius of the Earth is 6.38×10^6 m (for this problem, treat London as being on the equator), find the average speed of Mr. Fogg.

A) zero
B) 0.92 m/s
C) 5.8 m/s
D) More information is needed.

31) In the classic book by Jules Verne, Phileas Fogg travels around the world in 80 days. Leaving London, heading east, and arriving back in London 80 days later from the west. If the radius of the Earth is 6.38×10^6 m (for this problem, treat London as being on the equator), find the average velocity of Mr. Fogg.

A) zero
B) 0.92 m/s
C) 5.8 m/s
D) More information is needed.

32) A student throws a ball straight up at 22 m/s, releasing the ball 1.5 m above the ground. What is the maximum height of the ball above the ground?

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A) 24.7 m
B) 3.0 m
C) 15.3 m
D) 26.2 m
E) 27.7 m

33) A ball is dropped from rest from a height *h* above the ground. Another ball is thrown vertically upwards from the ground at the instant the first ball is released. Determine the initial speed of the second ball if the two balls are to meet at a height *h*/2 above the ground.

A) h/g
B) $\sqrt{gh}$
C) $\sqrt{gh/2}$
D) g/h
E) $\sqrt{2gh}$

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34) How much runway does a 150,000-kg cargo plane need if it uniformly reaches its minimum takeoff speed of 135 m/s in 12 seconds?

A) 1020 m
B) 810 m
C) 405 m
D) 1620 m
E) More information is needed.

35) A rock is dropped off of a building, reaching a constant speed of 37 m/s after 4 s. What is the rock's acceleration after 5 seconds?

A) 9.8 m/s^2
B) 12.3 m/s^2
C) 0 m/s^2
D) 9.3 m/s^2
E) 4.4 m/s^2

36) A heavy ball is dropped into a lake from a height of 30.0 m above the water. It hits the water with a certain velocity and continues to sink to the bottom of the lake at this same constant velocity. It reaches the bottom of the lake 10.0 s after it was dropped. How deep is the lake?

A) 182.5 m
B) 87.4 m
C) 29.6 m
D) 143.1 m
E) 209.7 m

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37) At time, t = 0 s, car A is at rest at the origin of the coordinate system and car B is moving due East at a constant velocity of 20 m/s. When car B is 50 m west of car A, car A starts to move at a constant acceleration of 2 m/s^2 due East. How far from the origin has car A moved when car B overtakes car A?

A) 20.0 m
B) 8.58 m
C) 14.3 m
D) 2.0 m
E) 4.36 m

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38) At time, t = 0 s, car A is at rest at the origin of the coordinate system and car B is moving due East at a constant velocity of 20 m/s. When car B is 50 m west of car A, car A starts to move at a constant acceleration of $2\ m/s^2$ due East. A certain time later car B overtakes car A. How far from the origin has car A moved when car A eventually catches up with car B and once again moves farther East of car B?

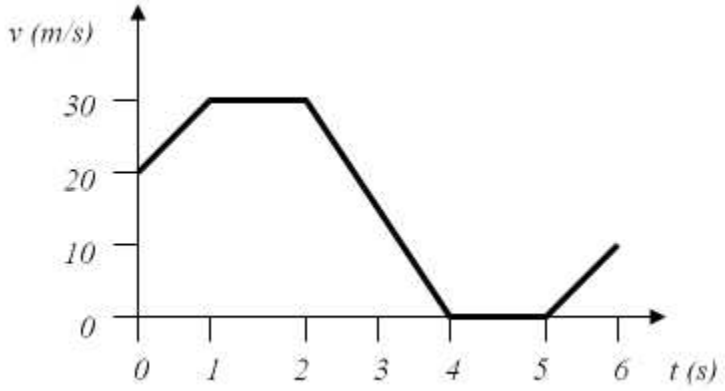
A) 87.2 m
B) 218 m
C) 291 m
D) 108 m
E) 56.3 m

39) Two trains, one travelling at 20 m/s and the other at 40 m/s, are headed toward one another along a straight-level track. When they are 950 m apart, each engineer sees the other's train and applies the brakes. Assuming both trains have equal magnitude accelerations after the brakes are applied, determine the minimum magnitude of this acceleration in order to avoid a collision.

A) $162\ m/s^2$
B) $0.87\ m/s^2$
C) $3.45\ m/s^2$
D) $1.05\ m/s^2$
E) $2.15\ m/s^2$

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40) The figure shows the time-dependent velocity of an object. Assuming that the object starts from rest at the origin of the coordinate system, what is the magnitude of the displacement of the object at *t = 5 s*?



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A) 75 m
B) 55 m
C) 60 m
D) 40 m
E) 85 m

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41) The distance between Sarnia and London Ontario, Canada is about 100 km. You cover first 50 km at 40 km/h. In order for you to travel with an average speed of 50 km/h for the entire trip, the speed to cover the second 50 km would be

A) 50 km/h.
B) 67 km/h.
C) 78 km/h.
D) 100 km/h.

42) An object with constant acceleration has velocity of 12 m/s when its position is x = 8 m. At another position x = 16 m, its velocity is 20 m/s. Its acceleration is

A) 1 m/s^2.
B) 5 m/s^2.
C) 7 m/s^2.
D) 16 m/s^2.

43) A firecracker is fired straight up with a speed of 100 m/s. Neglecting air resistance, the maximum height it will attain is

A) 510 m.
B) 325 m.
C) 280 m.
D) 129 m.

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44) An elevator is moving upward with a speed of 8 m/s when a bolt comes loose from its underside. The bolt reaches the bottom of the shaft in 4 seconds. The speed of the bolt at the bottom of the shaft is

A) 39 m/s.
B) 21 m/s.
C) 31.2 m/s.
D) 47.2 m/s.

45) A rocket, speeding along toward Alpha Centauri, has an acceleration $a(t) = At^2$, where A is constant. Assume that the rocket began at rest at the Earth (x = 0) at t = 0. Assuming it simply travels in a straight line from Earth to Alpha Centauri (and beyond), what is the ratio of the speed of the rocket when it has covered half the distance to the star to its speed when it has travelled half the time necessary to reach Alpha Centauri?

A) $\sqrt[3]{2}$
B) $\sqrt[3]{8}$
C) $\sqrt[4]{2}$
D) $\sqrt[4]{8}$

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46) A rocket, speeding along toward Alpha Centauri, has an acceleration a(t) = At^2, where A is constant. Assume that the rocket began at rest at the Earth (x = 0) at t = 0. Assuming it simply travels in a straight line from Earth to Alpha Centauri (and beyond), what is the ratio of the speed of the rocket when it has passed the star to the speed when it has travelled half the time necessary to reach Alpha Centauri?

A) 2
B) 4
C) 8
D) 16
E) 32

47) A rocket, speeding along toward Alpha Centauri, has an acceleration $a(t) = At^2$. Assume that the rocket began at rest at the Earth (x = 0) at t = 0. Assuming it simply travels in a straight line from Earth to Alpha Centauri (and beyond), what fraction of the trip to Alpha Centauri has the rocket travelled when it has travelled half the time necessary to reach the star?

A) 1/2
B) 1/4
C) 1/8
D) 1/16
E) 1/32

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48) A helicopter lifts off at a constant acceleration of $2.3\ m/s^2$ upward. What is the height of the helicopter 2.5 s after liftoff?

A) 6.6 m
B) 7.2 m
C) 13 m
D) 14 m

49) A helicopter lifts off at a constant acceleration of $2.3\ m/s^2$ upward. When after liftoff is the speed of the above helicopter 10.0 m/s?

A) 2.8 s
B) 2.9 s
C) 4.0 s
D) 4.3 s

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50) A football player is standing on the 10- yard line. He runs forward to the 40- yard line and then runs backwards to the 30- yard line. What is the distance that he has traveled and what is his displacement?
A) distance = 20 yards, displacement = 20 yards forward
B) distance = 20 yards, displacement = 30 yards forward
C) distance = 30 yards, displacement = 30 yards forward
D) distance = 40 yards, displacement = 20 yards forward
E) distance = 40 yards, displacement = 40 yards forward

51) A car starts from rest and travels east for 50 km, stops and travels west for 30 km to finish the trip. What is the distance traveled (start to finish) of the car during this trip?
A) 80 km
B) 80 km east
C) 20 km east
D) 20 km
E) the correct distance traveled is not listed

52) A car starts from rest and travels east for 50 km, stops and travels west for 30 km to finish the trip. What is the displacement (start to finish) of the car during this trip?
A) 80 km
B) 80 km east
C) 30 km east
D) 30 km
E) the correct displacement is not listed

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53) A car starts from rest and travels east for 50 km, stops and travels west for 30 km to finish the trip. What is the displacement (start to finish) of the car during this trip?
A) 80 km
B) 80 km east
C) 20 km east
D) 20 km
E) the correct displacement is not listed

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54) The position of a particle as a function of time along the x-axis is given by $x = (5\ m) + (12\ m/s)\ t - (4\ m/s^2)\ t^2$. What is the speed of the particle when its position is x = 14 m?

A) 0 m/s
B) 5 m/s
C) 12 m/s
D) 24 m/s
E) 60 m/s

55) Starting from rest, a car accelerates at a rate of $+4\ m/s^2$ for 3 seconds. The car then travels at a constant speed for 5 seconds. What is the displacement of the car after moving for a total of 8 seconds?

A) 32 m
B) 36 m
C) 72 m
D) 78 m
E) 128 m

56) A car is traveling with a speed of 24 m/s. What is the magnitude of the acceleration necessary to stop the car in a distance of 60 m?

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A) $0.4\ m/s^2$
B) $2.5\ m/s^2$
C) $4.8\ m/s^2$
D) $6.1\ m/s^2$
E) $9.6\ m/s^2$

57) A runner of mass 61.3 kg starts from rest and accelerates with a constant acceleration of $1.07\ m/s^2$ until she reaches a velocity of 8.1 m/s. She then continues running with this constant velocity. How far has she run (in meters) after 49.1 seconds?

A) 195.88
B) 229.18
C) 268.14
D) 313.72
E) 367.05
F) 429.45
G) 502.46
H) 587.87

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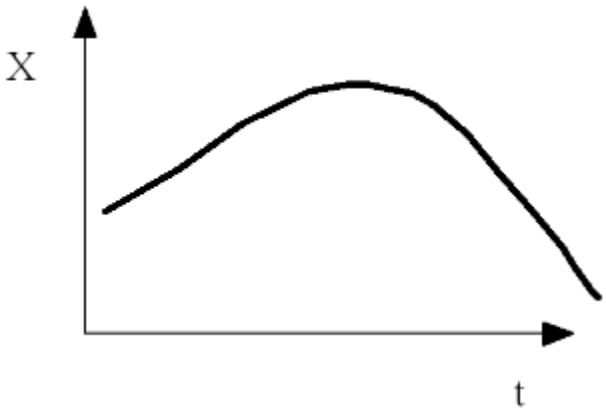
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58) What is your average speed in m/s when you go from -2 m to 10 m in 3.2 s and then from 10 m to -12 m in 5.4 seconds?

A) -2.7
B) 29.4
C) 11.2
D) 3.95
E) 0.34

59) The graph is of position versus time. Which statement best describes it?



A) The velocity is always positive.
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B) The acceleration is constant.
C) The velocity is first negative and then positive.
D) The acceleration is zero or negative.
E) The velocity is never zero.

60) A car can accelerate from zero to 164 m/s in 469 meters. How long (in seconds) does it take to do this?

A) 5.7
B) 2.3
C) 1.2
D) 13.2
E) 112

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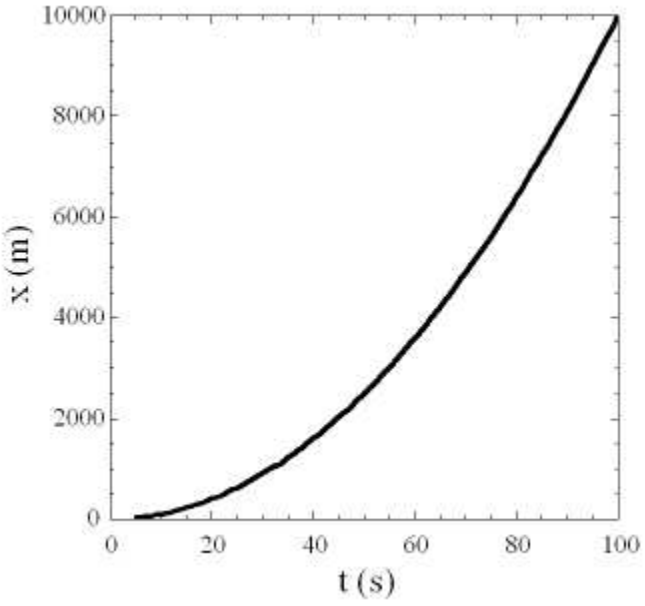
61) A ball is thrown directly down from the top of a building with a speed of 12 m/s, and it lands on the ground with a velocity 3 times the initial velocity. How high is the building (in meters)?

A) 12
B) 59
C) 234
D) 4320
E) 8760

62) What is your average speed in m/s if you start at the origin and then travel along the x-axis at v = 10 m/s for 2 s, stop for 5 s, and then travel at v = -4 m/s for 3 s?

A) -2.7
B) 3.2
C) 4.0
D) 1.0
E) 0.80

63) The graph shown is of position versus time. Which statement best describes it?



</p>

A) *v* reaches a maximum of about 200 m/s.
B) *a* is always negative.
C) *a* is both positive and negative.
D) *v* decreases with time.
E) The velocity is never zero.

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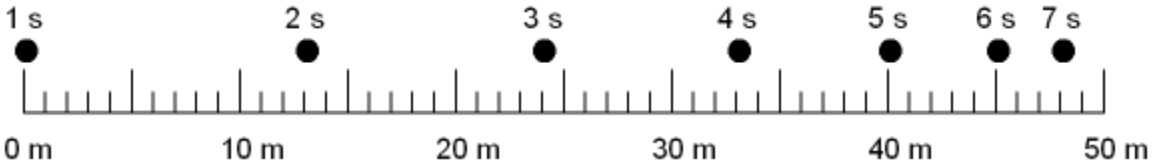
64) A rocket accelerates uniformly from 1000 to 4000 m/s over a distance of 5 km. How long did it take in seconds?

A) 0.15
B) 2
C) 15
D) 156
E) 983

65) A bicycle racer starts from rest and rides a distance of 100 m in 10.0 s, accelerating at a constant rate throughout the ride What is his acceleration in m/s^2?

A) 9.81
B) 1.40
C) 2.00
D) 98.6
E) 3.50

66) The figure shows the position of a car (black circles) at one-second intervals. What is the velocity at the time t = 4 s?



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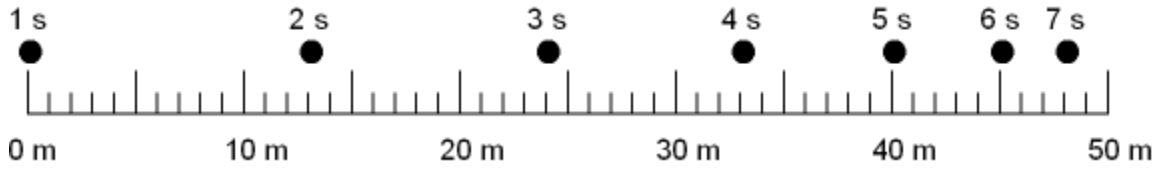
A) -12 m/s
B) -8 m/s
C) 0
D) 8 m/s
E) 12 m/s

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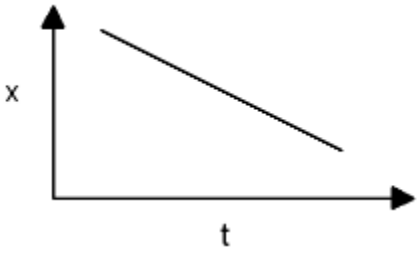
67) The figure shows the position of a car (black circles) at one-second intervals. What is the acceleration at the time t = 4 s?



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A) -2 m/s²
B) -1 m/s²
C) 0
D) 1 m/s²
E) 2 m/s²

68) In this graph of distance vs. time, which of the following is true (chose one)?



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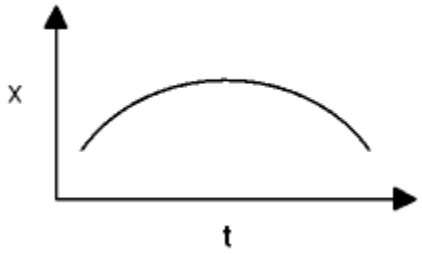
A) The speed is negative.
B) The velocity is negative.
C) The velocity is positive.
D) The acceleration is negative.
E) The acceleration is positive.

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69) In this graph of distance vs. time, which of the following is true (chose one)?



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A) The velocity is constant.
B) The acceleration is sometimes negative and sometimes positive.
C) The acceleration is always zero.
D) The acceleration is always positive.
E) The acceleration is always negative.

70) An object starts from the origin and goes along the x-axis to x = 10 m in 2 s, stops for 5.5 s, and then travels at v = -4 m/s for 2.5 s? What is the average speed and velocity in m/s?

A) speed = 2, velocity = 2
B) speed = 2, velocity = 0
C) speed = 2, velocity = -2
D) speed = 0, velocity = 0
E) speed = 4, velocity = 0

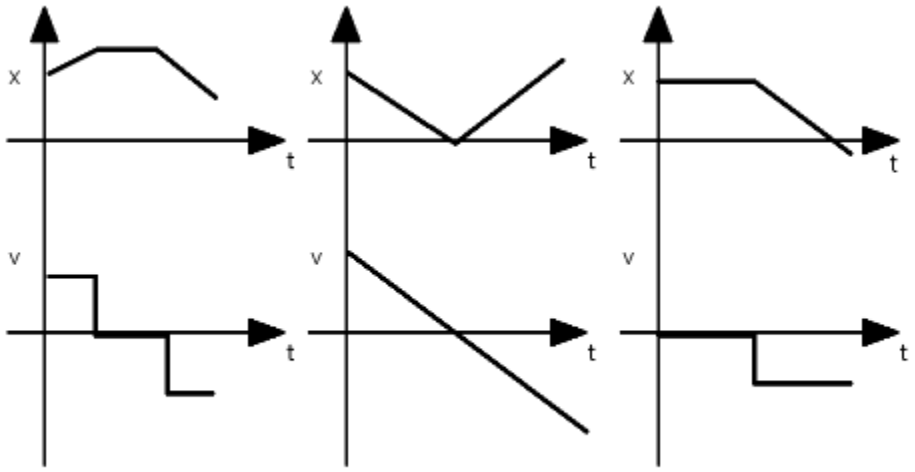
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71) The graphs shown are of x vs. t and v vs. t for three cases A, B, and C. Which of them could be correct?



A B C

A) A is correct.
B) B is correct.
C) C is correct.
D) A and B are correct.
E) A and C are correct.
F) B and C are correct.
G) A, B, and C are correct.
H) None are correct.

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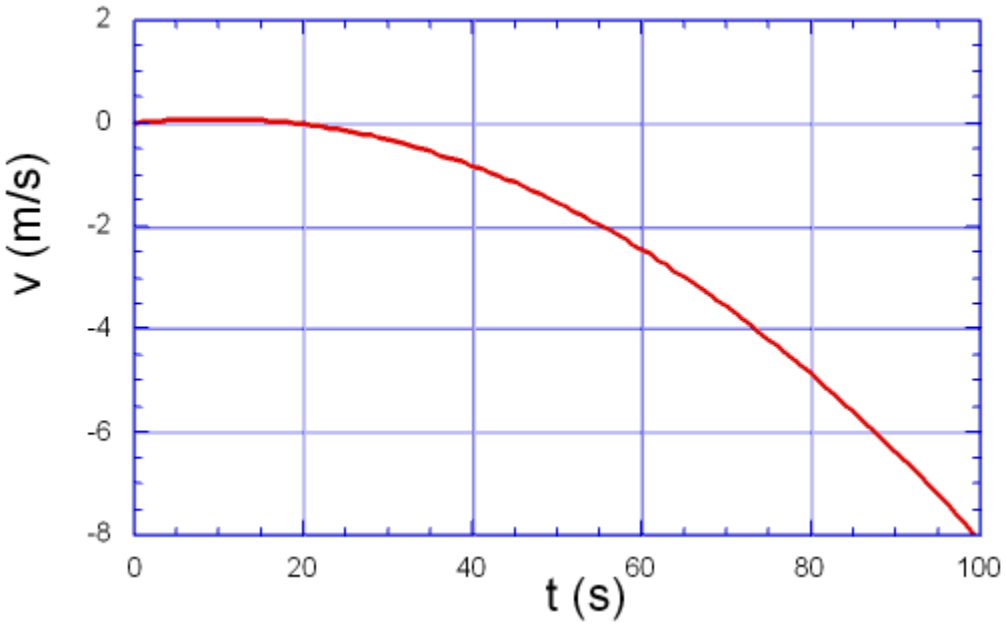
72) A car starts with a speed of 10 m/s and travels 1000 m in 30.0 s, while accelerating at a constant rate What is its acceleration?

A) 0.75 m/s^2
B) 1.40 m/s^2
C) 2.00 m/s^2
D) 98.6 m/s^2
E) 3.50 m/s^2

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73) The graph shown is of velocity versus time. Which statement best describes the acceleration?



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A) The acceleration is never zero.
B) The acceleration is maximum near t = 10 s.
C) The acceleration is minimum near t = 10 s.
D) The acceleration is minimum near t = 100 s at about $-0.15\ m/s^2$.
E) The average value of the acceleration is about $0.08\ m/s^2$.

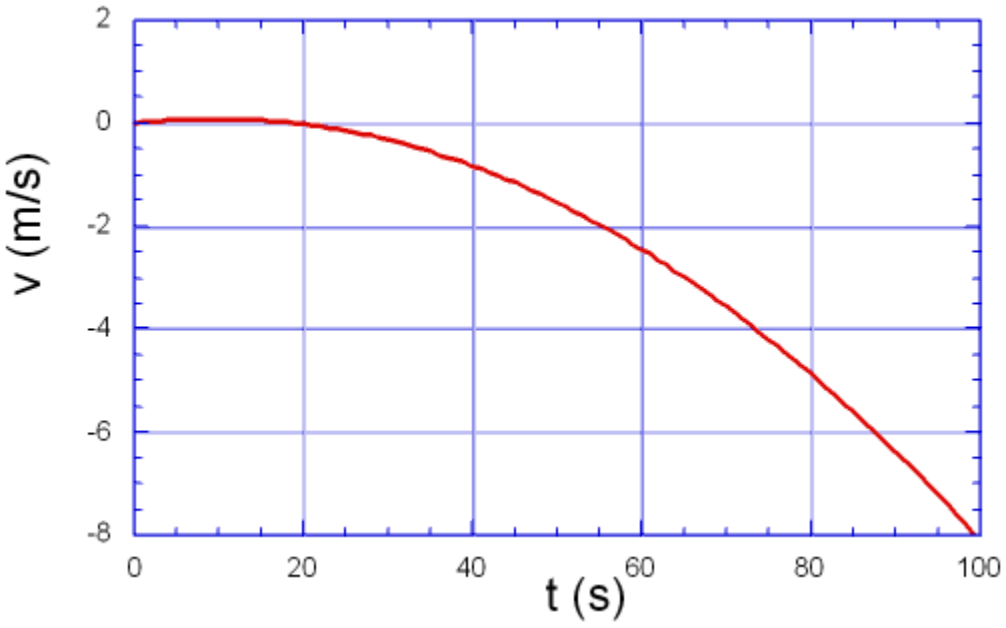
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74) The graph shown is of velocity versus time. Approximately when is the acceleration zero?



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A) The acceleration is never zero.
B) Near t = 20 s.
C) Near t = 10 s.
D) Near t = 50 s.
E) Near t= 100 s.

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75) A plane lands with a speed of 50.0 m/s, and then its brakes slow it down at $10.0\ m/s^2$. How far does it go (in m) between touching down and stopping?

A) 9.81
B) 50.
C) 125.
D) 500.
E) 250.

76) A stone is dropped from a height of 20.0 m. How long does it take for it to hit the ground?

A) 1.00 s
B) 2.02 s
C) 1.43 s
D) 0.50 s
E) 2.37 s

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77) If you drop an object from the top of a high building, how long does it take for the object to reach a speed of 100 km/h?
A) 0.124 s
B) 2.83 s
C) 5.11 s
D) 9.81 s
E) 12.3 s

78) A police officer spots a speeding car traveling at 20 m/s (approximately 44 mph) as it passes. The officer immediately starts to drive, accelerating from rest at a rate of $5\ m/s^2$. How far will the officer have to drive before catching up to the speeding car?
A) 100 m
B) 80 m
C) 500 m
D) 16 m
E) 160 m

79) A fish takes 14 minutes to swim 1 mile up a river. At this point a dam breaks and causes a current of 36 miles per hour to push him 0.6 miles downstream in 1 minute. What is the fish's average velocity for this entire trip?
A) 0.0004 mph
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B) 0.017 mph
C) 1.6 mph
D) 2.4 mph
E) 35 mph

80) A ball is thrown with velocity of 10m/s upwards. If the ball is caught 1 m above its initial position, what is the speed of the ball when it is caught?
A) 5.3 m/s
B) 6.8 m/s
C) 9.0 m/s
D) 10 m/s
E) 22 m/s

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81) A drag racer reaches 150 km/hr in a 2-km race. Assuming constant acceleration, what was his elapsed time for the race (in minutes)?

A) 1.4 min
B) 1.6 min
C) 1.8 min
D) 2.0 min
E) 2.2 min

82) A rock is thrown straight up with a velocity of 9.81 m/s. Its acceleration at the top of the flight is

A) 0.
B) $-9.81\ m/s^2$.
C) $+9.81\ m/s^2$.
D) $19.62\ m/s^2$.

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Answer Key

Test name: Chapter 2

1) C
2) A
3) D
4) D
5) B
6) D
7) A
8) C
9) E
10) C
11) B
12) C
13) C
14) A
15) A
16) C
17) B
18) A
19) A
20) D
21) A
22) D
23) B
24) B
25) E
26) B
27) C
28) D
29) C
30) D
31) A
32) D
33) B
34) B
35) C
36) A
37) B

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38) C
39) D
40) E
41) B
42) D
43) A
44) C
45) D
46) C
47) D
48) B
49) D
50) D
51) A
52) E
53) C
54) A
55) D
56) C
57) E
58) D
59) D
60) A
61) B
62) B
63) A
64) B
65) C
66) D
67) A
68) B
69) E
70) B
71) E
72) A
73) D
74) C
75) C
76) B
77) B

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78) E
79) C
80) C
81) B
82) B

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