حل تجميعة مراجعة نهائية وفق الهيكل الوزاري منهج انسباير

المزيد من الملفات بحسب الصف التاسع المتقدم والمادة فيزياء في الفصل الأول

1	تجميعة مراجعة نهائية وفق الهيكل الوزاري منهج انسباير
2	كراسة تدريبية مراجعة وفق الهيكل الوزاري الجديد منهج بريدج
3	تجميعة صفحات الكتاب وفق الهيكل الوزاري الجديد منهج بريدج القسم الالكتروني
4	تجميعة أسئلة امتحانات وزارية سابقة منهج بريدج و انسباير
5	تجميعة الأسئلة المقالية وفق الهيكل الوزاري الجديد منهج انسباير مع الإجابات

Physics

Grade 9 Adv

TERM 1

REVISION

CHAPTER
1 A Physics Toolkit

Practice[1].

1. The standard SI unit of mass is the _____.

A. kilometer
B. kilogram
C. pound
D. kilomole

---

2. If one were to divide 3.90 by 7.2, what would the answer be with the correct number of significant digits?

A. 0.54
B. 0.542
C. 1
D. 0.5417

---

3. The valid digits in a measurement are called _____.

A. uncertain digits
B. significant digits
C. powers of 10
D. valid digits

---

4. Solve the following problem and express the answer in scientific notation: 4.75×10^{3} kg + 8.24×10^{3} kg.

A. $1.299\text{x}10^{3}$ kg
B. 1.299×10^{4} kg
C. 1299×10^{3} kg
D. 12,990 kg

---

5. Convert 243 ng to its equivalent in kilograms.

A. 2.43×10^{-10} kg
B. 2.43×10^{-11} kg
C. 2.43×10^{9} kg
D. 2.43×10^{-7} kg

---

6. The multiplier for SI units with the prefix *pico* is _____.

A. 10^{-15}
B. 10^{-12}
C. 10^{-9}
D. 10^{-6}

7. The SI base unit of length is the _____.

A. foot
B. meter
C. kilometer
D. candela

---

8. In order to convert a quantity expressed in one unit into the same quantity in a different unit, use a(n) _____.

A. calculation coefficient
B. notation factor
C. conversion factor
D. algebraic quantity

---

9. The multiplier for SI units with the prefix *mega* is _____.

A. 106
B. 109
C. 1012
D. 1,015

---

10. Convert 57.7 kg to grams.

A. 5.77×10^5 g
B. 5.77×10^3 g
C. 5.77×10^4 g
D. 5.77×10^6 g

---

11. Combinations of SI base units are called _____.

A. significant units
B. base units
C. calculated units
D. derived units

---

12. Which of the following operations would yield an answer of 0.5417 to the correct number of significant digits?

A. 3.900/7.200
B. 3.9000/ 7.20
C. 3.900/7.20
D. 3.9000 / 7.2000

---

13. The multiplier for SI units with the prefix *micro* is _____.

A. 10^{-15}

B. 10^{-12}

C. 10^{-9}

D. 10^{-6}

---

14. Convert 1.45 km to meters.

A. 14.5×10^{3} m

B. 1.45×10^{-3} m

C. 0.145×10^{-3} m

D. 1.45×10^{3} m

---

15. The multiplier for SI units with the prefix *femto* is _____.

10^{-15}

A. 10^{15}

B. 39733

C. 10^{-9}

D. 10^{-6}

---

16. The standard SI unit of time is the _____.

A. minute

B. hour

C. millisecond

D. second

---

17. The multiplier for SI units with the prefix *deci* is _____.

A. 10^{1}

B. 10^{2}

C. 10^{-1}

D. 10^{-2}

---

18. The apparent shift in the position of an object when it is viewed from different angles is caused by _____.

A. imprecise measurement

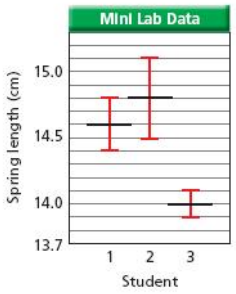
B. inaccuracy

C. parallax

D. faulty instruments

---

19. In the figure below, if a fourth student measured the spring's length to be 14.2 ± 0.2 cm, would this agree with any of the other students' measurements?



A. Yes, it agrees with only student 1.

B. Yes, it agrees only with student 3

C. Yes, it agrees with students 1 and 3.

D. No.

---

20. _____ describes how well the results of an experiment agree with the standard value.

A. Significance

B. Accuracy

C. Certainty

D. Precision

---

21. _____ describes the degree of exactness in a measurement.

A. Precision

B. Significance

C. Certainty

D. Accuracy

---

22. The property of a straight line on a graph that is the ratio of the vertical difference between two points to the horizontal difference between the same two points is the _____.

A. slope

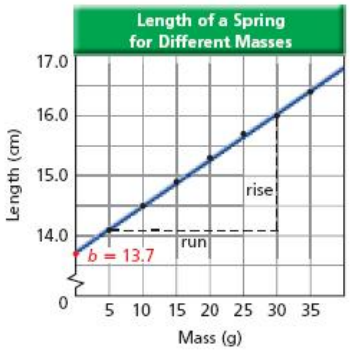
B. rise

C. intercept

D. tangent

---

23. Extrapolating from the figure below, if a mass of 45.0 g were hung on the spring, how long would the spring be?



A. 17.3 cm

B. 576 cm

C. 3.6 cm

D. 46.1 cm

---

24. What value is calculated by dividing rise by run?

A. acceleration of a moving object exhibiting uniform motion

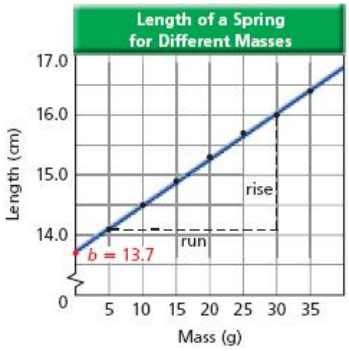
B. angular velocity

C. the slope of a straight line

D. the angle of a straight line

---

25. In the figure below, what is the physical meaning of the value for b?



A. It is the distance from the bottom of the spring to the suspended mass.

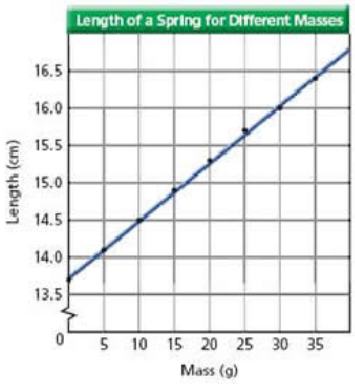
B. It is the length of the spring when no masses are suspended from it.

C. It is the length of the spring when the experiment is over.

D. It is the distance from the top of the spring to the suspended mass.

Practice[2].

1. Use the linear relationship between two variables to determine the length of the spring when a mass of 45.0 g is applied to it.



A. 10.4 cm

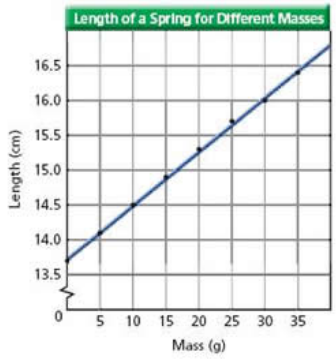
B. 16.3 cm

C. 16.8 cm

D. 17.1 cm

---

2. What is the length of the spring when nothing is hanging from it?



A. 0 cm

B. 13.25 cm

C. 13.75 cm

D. 16.75 cm

---

3. Gloria is designing an experiment to investigate how different kinds of wheels accelerate down a ramp. Which is the dependent variable?

A. Acceleration of the wheel

B. Radius of the wheel

C. Type of wheel

D. Steepness of ramp

---

4. Which of the following is equivalent to $V = IR$?

A. $I = VR$

B. $R = I/V$

C. $I = V/R$

D. $R = IV$

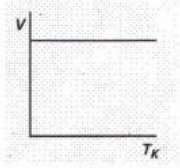
---

5. There is a linear relationship between volume, *V*, and absolute temperature, T_K, for an ideal gas at constant pressure:

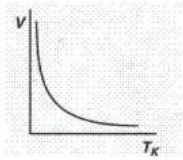
$$\frac{V}{T_K} = \text{constant}$$

If the constant is positive, which graph could represent this relationship?

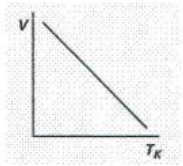
A.



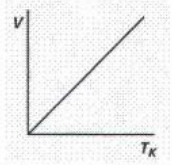
B.



C.



D.



---

6. A sprinter set a world record with a speed of 12.9 m/s. Using correct significant figures, what is this speed in km/hr?

A. 46.44 km/hr

B. 46.4 km/hr

C. 47 km/hr

D. 46.8 km/hr

---

7. What is the approximate width of a person's little finger?

A. 1m

B. 0.1 m

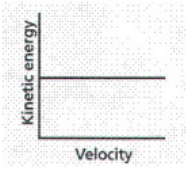
C. 0.01 m

D. 0.001 m

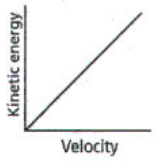
---

8. The relationship between kinetic energy of a moving object and its velocity is expressed as $KE = \frac{1}{2}mv^2$. Which of the following graphs represent this relationship?

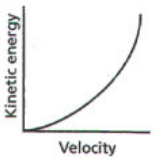
A.



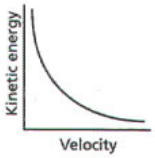
B.



C.



D.



---

9. The mass of a physics textbook is closest to _____.

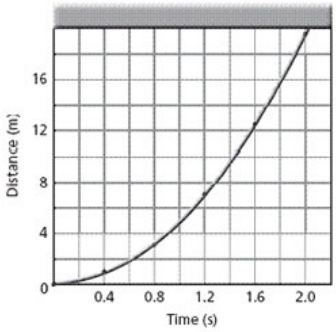
A. 10^3 kg

B. 10^1 kg

C. 10^0 kg

D. 10^{-2}kg

10.



The graph above shows a nonlinear relationship. Which equation best represents the graph shown above?

A. $m = \frac{\Delta y}{\Delta x}$

B. $y = \frac{x}{a}$

C. $y = ax^2 + bx + c$

D. $m = \frac{\Delta y^2}{\Delta x^2}$

CHAPTER
2 Representing Motion

Practice[1].

1. A(n) _____ is a series of images of a moving object that records its position after equal time intervals.

- **A.** frame
- **B.** operational definition
- **C.** motion diagram
- **D.** association

---

2. The vector that represents the sum of two or more vectors is called the _____.

- **A.** displacement
- **B.** speed
- **C.** resultant
- **D.** direction

---

3. In the particle model, the _____ of the object are (is) ignored.

- **A.** internal motions
- **B.** motion diagram
- **C.** position
- **D.** acceleration

---

4. The length of the position vector on a motion diagram is proportional to the _____.

- **A.** distance of the object from the origin
- **B.** distance of the object from the vertical intercept
- **C.** average speed
- **D.** velocity

---

5. A motion diagram is a series of images of a moving object that records its position after _____.

- **A.** 1/30 s
- **B.** equal time intervals
- **C.** it comes to rest
- **D.** an acceleration

---

6. The _____ is the point at which all variables in a coordinate system have zero magnitude.

- **A.** axis
- **B.** origin
- **C.** intercept
- **D.** coordinate system

---

7. Which of the following correctly describes the displacement of an object that moves from position x_i to x_f?

- **A.** $\Delta x = x_f - x_i$
- **B.** $v = \Delta x / \Delta t$
- **C.** $\Delta x_f = x_i - x_f$
- **D.** $\Delta x = x_f + x_i$

---

8. Which of the following is not a scalar quantity?

- **A.** 314.7 g
- **B.** 150 km southwest
- **C.** 25 C
- **D.** 2 hours 27 minutes

---

9. To subtract two vectors, _____.

- **A.** reverse the direction of the second vector and then add them
- **B.** use the equation R2 = A2 - B2
- **C.** use the same process as for adding them, then change the sign of the final value
- **D.** subtract 180 from θ, then use the Law of Cosines

---

10. Displacement is a change in _____.

- **A.** speed
- **B.** position
- **C.** distance
- **D.** velocity

---

11. The magnitude of a vector is always _____.

- **A.** a positive quantity
- **B.** equal to the direction
- **C.** equal to the displacement
- **D.** a negative quantity

---

12. When an object is in motion, its _____ must change.

- **A.** position
- **B.** shape
- **C.** size
- **D.** acceleration

---

13. Two displacements are equal when _____.

- **A.** the two magnitudes and directions are the same
- **B.** the two directions are the same
- **C.** they end at the same point
- **D.** they begin at the same point

---

14. The difference between t_i and t_f is the _____.

- **A.** displacement
- **B.** velocity
- **C.** time interval
- **D.** average speed

---

15. To calculate the distance traveled continuously in a straight line, _____.

- **A.** divide the distance traveled by the time needed to travel the distance
- **B.** subtract the cosine of the angle between the starting and finishing positions from the square of the distance traveled
- **C.** divide the change in velocity by the time over which the change occurs
- **D.** subtract starting position from final position.

---

16. A(n) _____ tells you where the zero point of the variable you are studying is located and the direction in which the values increase.

- **A.** coordinate system
- **B.** origin
- **C.** axis
- **D.** intercept

---

17. On a position-time graph, run = _____.

- **A.** Δa
- **B.** Δv
- **C.** Δt
- **D.** Δx

---

18. On a position-time graph, rise = _____.

- **A.** Δx
- **B.** Δt
- **C.** Δs
- **D.** Δv

---

19. You and a friend leave school at the same time. You drive at a constant 5.5 x 10^1 km/h and your friend drives 7.0 **?** 10^1 km/h. How long does it take each car to reach a mall that is 25 km from the school?

A. you: 1 hour 40 minutes, your friend 36 minutes
B. you: 2.2 hours, your friend: 2.8 hours
C. you: 27 minutes, your friend: 21 minutes
D. you: 21 minutes, your friend: 27 minutes

---

20. You drive a car for 2.0 h at 60 km/h, then for another 3.0 h at 85 km/h. What is your average velocity?

A. 75 km/h^2
B. 73 km/h
C. 75 km/h
D. 73 km/h

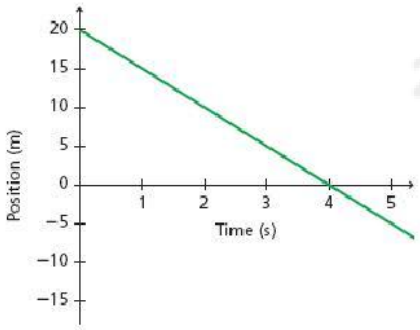
---

21. The slope of the line tangent to the curve on a position-time graph at a specific time is the _____.

A. instantaneous acceleration
B. instantaneous velocity
C. average velocity
D. displacement

---

22. Extrapolating from the graph below, where would the object be at *t* = 7 s?



A. 15 meters
B. -15 meters
C. - 7 meters
D. - 10 meters

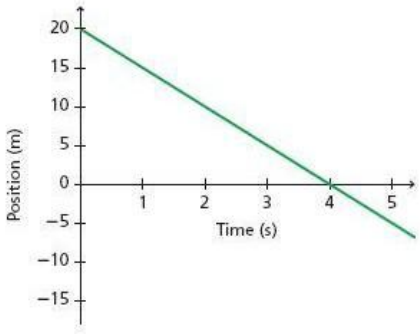
---

23. The _____ is the ratio of the total distance traveled to the time interval.

A. displacement
B. average speed
C. acceleration
D. instantaneous velocity

---

24. Based on the graph below, what is the object's velocity at $t = 4$ s?



A. 0 m/s

B. 5 m/s

C. -5 m/s

D. 4 m/s

---

25. Which of the following equations can be used to find the position of an object moving at constant velocity?

A. $d = d_f - v\ t$

B. $\Delta d = d_f - d_i$

C. $df = di + v\ t$

D. $\tan\theta = R_y/R_x$

Practice[2].

1. What must you be able to answer to describe an object's motion?

A. who and what

B. what and how

C. when and where

D. where and who

---

2. An object can change position along the path of all of these EXCEPT _____.

A. back-and-forth

B. circle

C. straight line

D. dotted line

---

3. A motion diagram is a series of images of a moving object that records its position after _____.

A. 1/30 s

B. it comes to rest

C. equal time intervals

D. an acceleration

---

4. Replacing an object in a motion diagram with a single point is called the _____.

- **A.** alternative model
- **B.** frame differential
- **C.** operational definition
- **D.** particle model

---

5. The vector that represents the sum of two vectors is called the _____

- **A.** direction
- **B.** displacement
- **C.** resultant
- **D.** speed

CHAPTER
3

Accelerated Motion

Practice[1].

1. _____ is the change in velocity divided by the time needed for the change to occur.

   A. Displacement
   B. Average velocity
   C. Average acceleration
   D. Speed

---

2. Acceleration describes the rate of change in _____.

   A. position
   B. velocity
   C. mass
   D. gravity

---

3. _____ means that equal displacements occur during successive equal time intervals.

   A. Average speed
   B. Uniform motion
   C. Average acceleration
   D. Uniform acceleration

---

4. If a car travels 100 km in a straight line in the first hour of its trip, 100 km in a straight line in the next hour, and continues in this way, its motion is _____.

   A. accelerated
   B. dynamic
   C. irregular
   D. uniform

---

5. The slope of the line tangent to the curve on a velocity-time graph at a specific instant of time is the _____.

   A. average velocity
   B. instantaneous velocity
   C. instantaneous acceleration
   D. displacement

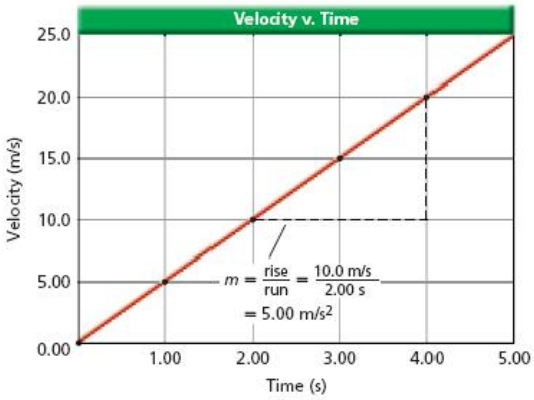
---

6. A car moving north at 80 km/h turns and travels south at 65 km/h. What are the magnitude and direction of the change in velocity?

   A. 145 km/h, south to north
   B. 145 km/h, north to south
   C. 25 km/h, north to south
   D. 25 km/h, south to north

---

7. If the motion in the figure below continued on at that same acceleration, what would the object's speed be at $t = 10.00$ s?



A. 25.0 m/s

B. 100.0 m/s

C. 50.0 m/s

D. 40.0 m/s

---

8. How far does a car travel in 30.0 s while its velocity is changing from 50.0 km/h to 80.0 km/h at a uniform rate of acceleration?

A. 1.95×10^3 m

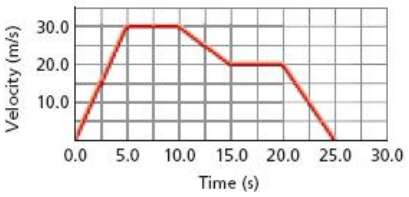
B. 252 m

C. 5.41×10^2 m

D. 1.08×10^3 m

---

9. In the figure below, what is the displacement of the object between 0.0 and 5.0 s?



A. 75.0 m

B. 5.0 m

C. 150.0 m

D. 30.0 m

---

10. A car with a velocity of 30 m/s accelerates uniformly at the rate of 2.0 m/s^2 for 10 s. What is its final velocity?

A. 50 m/s^2

B. 40 m/s^2

C 40 m/s

D. 50 m/s

---

11. How long will it take an airplane at rest that accelerates uniformly at 2.5 m/s^2 to reach the ground velocity of 7.0×10^1 m/s that is required for take off?

A. 28 s

B. 35 s

C. 11 s

D. 4 s

---

12. A car accelerates uniformily at a rate of 0.50 m/s^2 for 1.0×10^1 s. Its final velocity is 23 m/s. What is the initial velocity?

A. 18 m/s^2

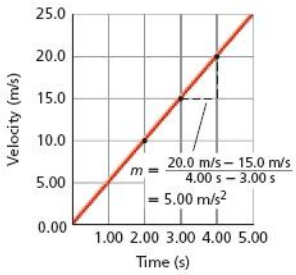
B. 28 m/s

C. 28 m/s^2

D. 18 m/s

---

13. The *a-t* graph corresponding to the *v-t* graph below would be a ____.



A. straight line with a constant positive slope

B. line beginning at the origin with increasing positive slope

C. straight vertical line

D. straight horizontal line above the *t* axis

---

14. What is the minimum length runway needed to accommodate airplanes that can accelerate uniformly at 2.7 m/s^2 and must reach a ground velocity of 64 m/s before they can take off?

A. 7.6×10^2 m

B. 1.5×10^2 m

C. 7.6×10^3 m

D. 1.5×10^3 m

---

15. Find the uniform acceleration that would cause a car's velocity to change from 27 m/s to 45 m/s in a 6.0-s period.

A. 3.0 m/s

B. 18.0 m/s

C. 18.0 m/s^2

D. 3.0 m/s^2

---

16. In the graph below, what is the total displacement of the object?

A. 75.0 m

B. 0 m

C. -25.0 m

D. 500.0 m

---

17. A 75-kg swimmer steps off a 10.0-m tower. What is the swimmer's velocity on hitting the water?

A. -14.0 m/s

B. 27.1 m/s

C. 38.3 m/s

D. 0.25 m/s

---

18. A ball falls freely from rest for 15.0 s. Calculate the ball's velocity after 15.0 s.

A. -78 m/s

B. 78 m/s

C. 0 m/s

D. -147 m/s

---

19. A tennis ball is dropped from 1.5 m above the ground, touches the ground for 0.008 s and rebounds to a height of 0.75 m. What is the ball's velocity when it hits the ground?

A. -5.4 m/s^2

B. -5.4 m/s

C. -3.8 m/s

D. 3.8 m/s^2

---

20. A bicycle rider travels 15 km in 1.25 hours. What is the rider's average speed?

- **A.** 10.5 km/h
- **B.** 13.75 km/h
- **C.** 12 km/h
- **D.** 22.5 km/h

---

21. Displacement is a change in _____.

- **A.** speed
- **B.** position
- **C.** velocity
- **D.** distance

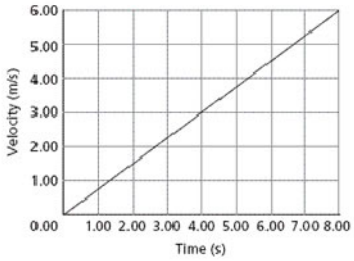
---

22. A track runner begins running from the starting line and reaches his race pace of 4-minutes per mile in 5 seconds. What is the runner's acceleration?

- **A.** 1.33 m/s^2
- **B.** 6.67 m/s^2
- **C.** 0.05 m/s^2
- **D.** 0.001 m/s^2

Practice[2].

1. The graph shows the velocity of a bicycle as the rider begins to move from a stop.



Based on the slope of the graph, what is the average acceleration of the bicycle?

A. 0.8 m/s^2 forward

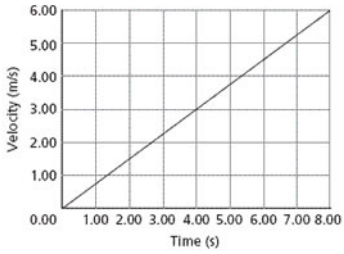
B. 1.3 m/s^2 forward

C. 2.0 m/s^2 forward

D. 6.0 m/s^2 forward

---

2. The graph shows the velocity of a bicycle as the rider begins to move from a stop.



What does the slope of the graph represent?

A. acceleration

B. displacement

C. time

D. velocity

---

3. A school bus's velocity decreases from 15 m/s to 5 m/s forwards over a period of 10 s. What is the bus's average acceleration?

A. 1 m/s^2 forward

B. 2 m/s^2 forward

C. 1 m/s^2 backward

D. 2 m/s^2 backward

---

4. If a race horse accelerates from rest at a constant rate of 3.5 m/s^2 north, how long will the horse take to reach a speed of 19 m/s?

- **A.** 67 s
- **B.** 0.18 s
- **C.** 16 s
- **D.** 5.4 s

---

5. A bucket of paint falls from a ladder onto the sidewalk below. If the bucket falls for 0.95 s, what is its velocity just before it hits the sidewalk?

- **A.** 4.4 m/s down
- **B.** 8.9 m/s down
- **C** 9.3 m/s down
- **D.** 10 m/s down

---

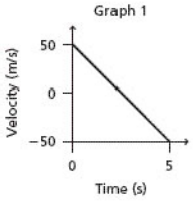
6. A physics student drops a well-wrapped egg off the top of the school roof. If the roof is 4.0 m above the ground, what is the egg's speed just before that egg hits the ground?

- **A.** 8.9 m/s
- **B.** 0.90 m/s
- **C.** 4.9 m/s
- **D.** 78.4 m/s

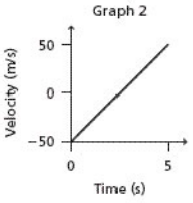
---

7. Which graph might show the velocity of a ball that is thrown straight up into the air and allowed to fall freely to the ground? (Consider up to be the positive direction.)

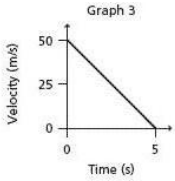
A.



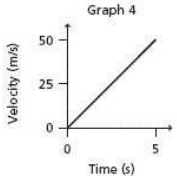
B.



C.



D.



8. A car with an initial position of 75 m and an initial velocity of 5 m/s accelerates at an average rate of 4 m/s^2 for 2 s. What is the car's position after 2 s?

- **A.** 85 m
- **B.** 18 m
- **C.** 93 m
- **D.** 75 m

---

9. A racing cyclist is traveling at 15.3 km/h when she speeds up with a constant forward acceleration. After 5.00 s, her speed is 31.0 km/h. What is her acceleration?

- **A.** 3.14 km/h/s forward
- **B.** 4.90 km/h/s forward
- **C.** 23.2 km/h/s forward
- **D.** 27.0 km/h/s forward

---

10. How far will a brick starting from rest fall freely in 3.0 seconds?

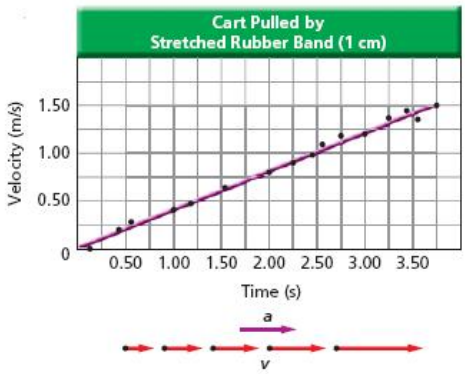
- **A.** 15 m
- **B.** 29 m
- **C.** 44 m
- **D.** 88 m

CHAPTER
4

Forces in One Dimension

Practice[1].

1. If the force used to generate the graph below were doubled, how, if at all, would the graph change?



A. The slope of the graph would be halved.

B. It would not change.

C. The *y*-intercept of the graph would be a non-zero number.

D. The slope of the graph would be doubled.

---

2. A(n) _____ force acts on an object without touching it.

A. equilibrium

B. net

C. free-body

D. field

---

3. An object that has a force exerted on it is called _____.

A. the system

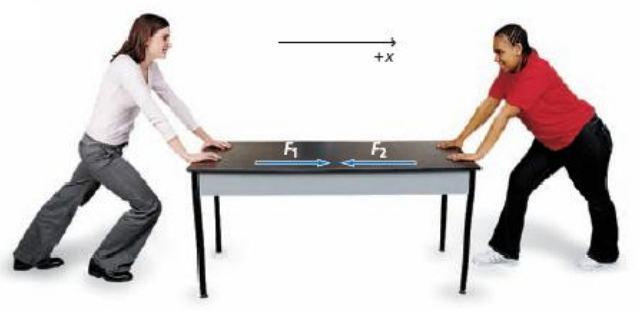
B. the environment

C. the agent

D static

---

4. For the situation pictured below, if the table had a mass of 35 kg, and $\boldsymbol{F}_1$ = 20.0 N and $\boldsymbol{F}_2$ = 30.0 N, what would the acceleration be?



A. -3.5 m/s^2

B. 0.70 m/s^2

C. 1.4 m/s^2

D. -0.28 m/s^2

---

5. The specific, immediate cause of a force is called the _____.

- **A.** contact
- **B.** system
- **C.** agent
- **D.** origin

---

6. Newton's second law states that _____.

- **A.** a force is needed to keep an object moving
- **B.** the acceleration of an object is proportional to the net force exerted on the object and inversely proportional to the mass of the object.
- **C.** objects remain either at rest or continue moving in a straight line with constant speed only if the net force on that object is zero
- **D.** all forces come in pairs

---

7. The net force is the _____.

- **A.** force exerted on one surface by another when there is no relative motion between the two
- **B.** vector sum of all the outside forces on an object
- **C.** apparent weight
- **D.** friction between any two objects

---

8. Newton's first law of motion is often called the law of _____.

- **A.** inertia
- **B.** equilibrium
- **C.** momentum
- **D.** acceleration

---

9. The vector sum of all the forces on an object is called the _____ force.

- **A.** effort
- **B.** resistant
- **C.** composite
- **D.** net

---

10. The unit of force in the SI system is the _____.

- **A.** newton
- **B.** quantum
- **C.** pascal
- **D.** magnum

---

11. An object that experiences a push or a pull has a(n) _____ exerted on it.

- **A.** environment
- **B.** inertia
- **C.** system
- **D.** force

---

12. A(n) _____ force acts on an object only by touching it.

- **A.** field
- **B.** tactile
- **C.** contact
- **D.** inert

---

13. Newton's first law of motion states that _____.

- **A.** all forces come in pairs
- **B.** the acceleration of an object is proportional to the net force exerted on the object and is inversely proportional to the mass of that object.
- **C.** air does not exert a force
- **D.** objects remain either at rest or continue moving in a straight line with constant speed only if the net force on that object is zero

---

14. For the situation pictured below, if F_1 = 200 N and F_2 = 500 N, what would F_{net} be?

- **A.** -700 N
- **B.** -300 N
- **C.** 300 N
- **D.** 700 N

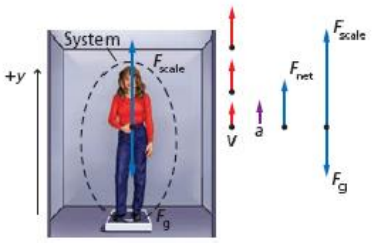
---

15. An object is in equilibrium when _____.

- **A.** its acceleration is constant
- **B.** the net force on it is zero
- **C.** three or more forces act on it
- **D.** the equilibrant is greater than zero

---

16. For the woman pictured below, the scale reads 120% of her weight. What is the acceleration of the elevator?



A. -0.2g
B. 1.2*g*
C. 0.8*g*
D. 0.2*g*

---

17. On Earth, a scale shows that you weigh 490 N. What is your mass?

A. 22 kg
B. 50 kg
C. 100 kg
D. 75 kg

---

18. The weight force is defined as _____.

A. $\boldsymbol{F_g} = m + \boldsymbol{g}$
B. $F_g = m\boldsymbol{a}$
C. $\boldsymbol{F_g} = m\boldsymbol{g}$
D. $T = 2\pi\sqrt{\frac{l}{g}}$

---

19. Which of the following statements is true?

A. Weight is the measure of the amount of matter in an object.
B. Weight is a measure of inertia.
C. Weight can change when acceleration due to gravity changes.
D Mass is a force.

---

20. The force exerted by a fluid on an object moving through the fluid is called the _____.

A. apparent weight
B. net force
C. drag force
D. terminal velocity

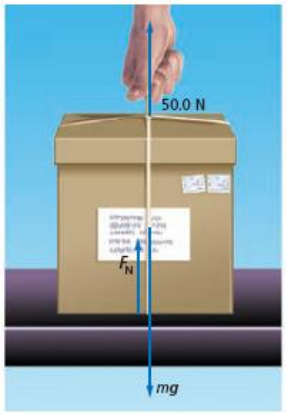
---

21. How do you calculate your weight in newtons?

A. $(9.80\ m/s^2)\sin\ ?$
B. $2?(m)$
C. $\sqrt{2am}$
D. $(9.80\ m/s^2)(m)$

---

22. If the box pictured below has a mass of 6.0 kg, what will the normal force of the table on the box be?



A. 50 N
B. 8.8 N
C. 160 N
D. 9.8 N

---

23. Newton's third law of motion states that _____.

A. for any force caused by object A on object B, there is an equal and opposite force caused by object B on object A.
B. objects remain either at rest or continue moving in a straight line with constant speed only if the net force on that object is zero
C. the acceleration of an object is proportional to the net force exerted on the object
D. a force is needed to keep an object moving

---

24. If the box pictured below has a mass of 6.0 kg, what will the normal force of the table on the box be?

A. 8.8 N
B. 9.8 N
C. 50 N
D. 110 N

---

25. A 75-kg man pushes a 12-kg child in a swing with a force of 3.0 N. What is the force on the man from the child?

A. 3.0 N
B. 0.25 N
C. -3.0 N
D. 0.040 N

Practice[2].

1. A spring scale reads 25 newtons as it pulls a 5.0-kg mass across a table. What is the magnitude of the force exerted by the mass on the spring scale?

A. 50 N

B. 25 N

C. 5.0 N

D. 25 N

---

2. A net force of 9.0 newtons accelerates a wagon at 3.0 m/s^2. What net force would be required to accelerate the same wagon at 6.0 m/s^2.

A. 3.0 N

B. 6.0 N

C. 9.0 N

D. 18 N

---

3. What is the force of gravity on a person who has a mass of 60.0 kg?

A. 60.0 N down

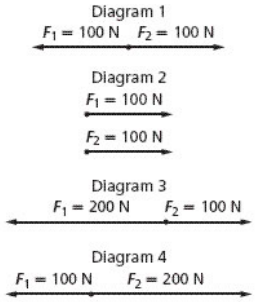
B. 294 N down

C. 480 N down

D. 588 N down

---

4. The free-body diagrams below show four ways that two different forces could be exerted on an object.



In which diagram will the object move toward the left?

A. Diagram 1

B. Diagram 2

C. Diagram 3

D. Diagram 4

---

5. Two people are paddling a row boat. Each exerts a horizontal force of 315 N toward the back of the boat. The water resists the motion of the boat with a force of 200 N. What is the magnitude of the net force on the rowboat?

A. 630 N

B. 430 N

C. 830 N

D. 315 N

---

6. Two people are paddling a row boat. Each exerts a horizontal force of 315 N toward the back of the boat. The water resists the motion of the boat with a force of 200 N. If the combined mass of the boat and the two people in it is 215 kg, what is the acceleration of the rowboat?

A. ○ 2.93 m/s^2 forward

B. ○ 2.00 m/s^2 forward

C. ○ 0.683 m/s^2 forward

D. ○ 1.47 m/s^2 forward

---

7. Two dogs play tug-of-war with a rope toy that has a mass of 0.25 kg. If one dog pulls on the toy with a force of 120 N to the right and the other dog pulls in the opposite direction with a force of 130 N to the left, what is the horizontal acceleration of the toy?

A. 10 m/s^2 to the right

B. 10 m/s^2 to the left

C. 40 m/s^2 to the left

D. 40 m/s^2 to the right

---

8. A net force of 1.00 newtons accelerates an object at 5.00 meters per second per second. What net force would be required to accelerate the same object at 10.0 meters per second per second?

A. 0.5 N

B. 1.0 N

C. 2.0 N

D. 50 N

---

9. A 15.0 kg shopping cart is accelerated uniformly from rest to a speed of 2.00 m/s in 1.50 s. What is the magnitude of the force producing this acceleration?

A. 20.0 N

B. 11.3 N

C. 30.0 N

D. 22.5 N
