

Speed, Velocity & Acceleration



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف الثامن ← علوم ← الفصل الثالث ← ملفات متنوعة ← الملف

تاريخ إضافة الملف على موقع المناهج: 2026-06-12 12:15:10

ملفات اكتب للمعلم اكتب للطالب ا اختبارات الكترونية ا اختبارات ا حلول ا عروض بوربوينت ا أوراق عمل
منهج انجليزي ا ملخصات وتقارير ا مذكرات وبنوك ا الامتحان النهائي ا للمدرس

المزيد من مادة
علوم:

التواصل الاجتماعي بحسب الصف الثامن



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الثامن والمادة علوم في الفصل الثالث

مراجعة عامة للوحدة الثانية الموجات والصوت

1

هيكل الامتحان 2026م غير محلول

2

حلول هيكل الامتحان 2026م

3

حلول تدريبات الأسئلة المتوقعة هيكل

4

تدريبات الأسئلة المتوقعة هيكل غير محلول

5

Speed, Velocity & Acceleration

Total questions: 20

Worksheet time: 13mins

Name Class Date

1. Speed = _____
 - a) Distance + time
 - b) Distance – time
 - c) Distance x time
 - d) Distance / time

2. This occurs when an object speeds up, slows down, or changes direction.
 - a) Speed
 - b) Velocity
 - c) Acceleration

3. Another way to explain the speed and direction of a object would be to describe it's _____
 - a) Speed
 - b) Velocity
 - c) Acceleration

4. Velocity = _____
 - a) Speed – direction
 - b) Speed + direction
 - c) Speed x direction
 - d) Speed / direction



Answer keys are added in the last page

5.



Avery likes to walk 30 feet in 10 seconds. What is her speed?

- a) 3 feet/sec
- b) 6 feet/sec
- c) 10 feet/sec
- d) 2 feet/sec

6. At what speed would a car have to move in order to travel 20 kilometers in 2 hours.

- a) 5 km/hr
- b) 10 km/hr
- c) 20 km/hr
- d) 40 km/hr

7. Changes in our speed, direction or both are called _____.

- a) gravity
- b) changes
- c) acceleration
- d) displacement

8.



What is the definition of velocity?

- a) A force that opposes motion
- b) Uniform circular motion
- c) The speed of an object in a particular direction



Answer keys are added in the last page

- 13.
- 
- A white Boeing 787-9 Dreamliner aircraft is shown in flight, banking slightly to the right. It is positioned above a thick layer of white, puffy clouds. The sky above the clouds is a clear, vibrant blue. Below the clouds, a sliver of a coastline with green land and blue water is visible. The aircraft's distinctive features, such as its long, slender fuselage and large, curved wings, are clearly visible.

"This airplane is traveling at 500 mph, West"

- a) Speed
b) Velocity
c) Acceleration
14. Which of the following is a unit of speed?
- a) km/hr
b) Minutes
c) Centimeters
d) meters

Answer keys are added in the last page

15. Which of the following is a unit of distance?

- a) Km/hr
- b) Minutes
- c) meters
- d) seconds

16.



A _____ is a push or a pull on an object.

- a) friction
- b) force
- c) magnet
- d) gravity

17.



If these teams are pulling with **the same** amount of force what will happen?

- a) The boy in blue will win.
- b) They will not move at all.
- c) The boy in red will win.
- d) Both will fall down.

18. What will cause an object to move?

- a) Applied forces
- b) Balanced forces
- c) Unbalanced forces



Answer keys are added in the last page

19. If the sum of the forces equates to zero, they are considered as

_____.

a) net force

b) combined

c) unbalanced

d) balanced

20. It refers to the size or strength of the force.

a) balanced

b) combined

c) magnitude

d) gravitational



Answer keys are added in the last page

Answer Keys

- | | | |
|-------------------------|--|--------------------------|
| 1. d) Distance / time | 2. c) Acceleration | 3. b) Velocity |
| 4. b) Speed + direction | 5. a) 3 feet/sec | 6. b) 10 km/hr |
| 7. c) acceleration | 8. c) The speed of an object in a particular direction | 9. a) TRUE |
| 10. a) TRUE | 11. c) Acceleration occurred because you changed directions. | 12. b) Speed |
| 13. b) Velocity | 14. a) km/hr | 15. c) meters |
| 16. b) force | 17. b) They will not move at all. | 18. c) Unbalanced forces |
| 19. d) balanced | 20. c) magnitude | |



Answer keys are added in the last page



Answer keys are added in the last page

Describing Motion

Total questions: 17

Worksheet time: 11mins

Name Class Date

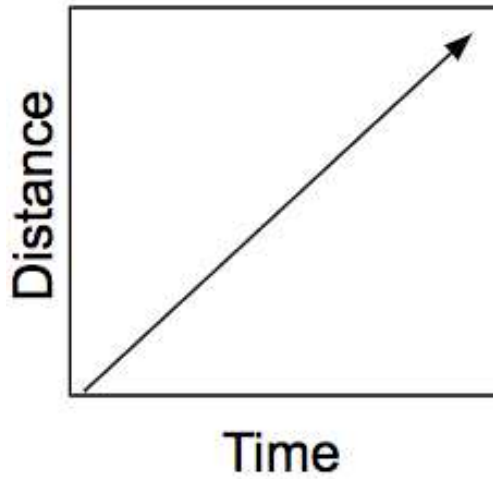
1. An object is _____ if its position changes relative to another object.
 - a) in motion
 - b) at reset
 - c) a frame of refence
 - d) magical

2. A place or object used for comparison to determine if another object is in motion is called a
 - a) comparison point
 - b) reference point
 - c) point of view
 - d) motion detector

3. Speed =
 - a) distance / time
 - b) time / distance
 - c) distance * time

4. You walk 10 meters to math class in 20 seconds. Your average speed is
 - a) 2 m/s
 - b) 0.5 m/s
 - c) 200 m/s
 - d) 5 m/s

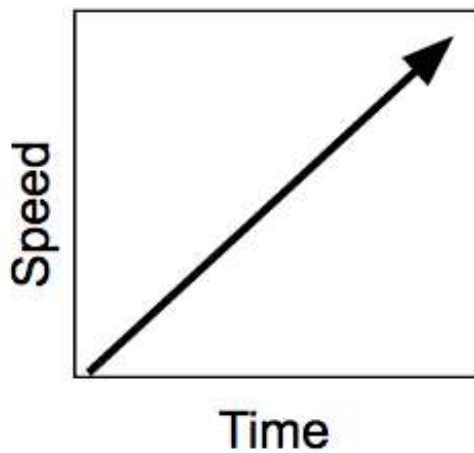
5.



This graph shows

- a) An object stopped
- b) An object slowing down
- c) An object speeding up
- d) An object moving at constant speed

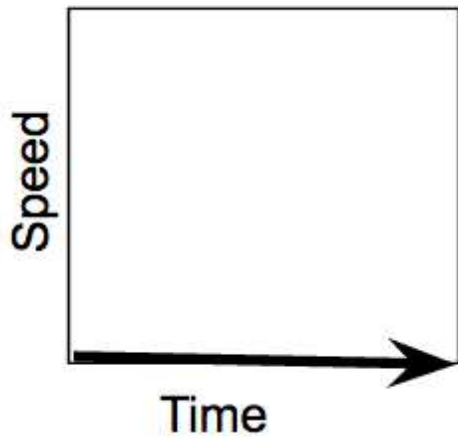
6.



This graph shows

- a) An object speeding up
- b) An object slowing down
- c) An object stopped
- d) An object moving at constant velocity

7.



This graph shows

- a) An object stopped
 - b) An object moving at constant speed
 - c) An object slowing down
 - d) An object speeding up
8. When something has **speed** in a certain **direction** it is called _____.
- a) motion
 - b) position
 - c) velocity
 - d) speed
9. What is the SI unit for speed
- a) Km
 - b) s
 - c) m/s
 - d) m/s^2
10. Mufasa lives 100 meters from his friend's house. What is his average speed if he reaches his friends house in 50 seconds?
Distance= 100 m
time = 50 seconds
- a) 1 m/s
 - b) 2 m/s
 - c) 3 m/s
 - d) 4 m/s

11. A soccer ball is kicked from 40 meters out. It takes 5 seconds to reach the goal. What speed was the ball traveling?
 $d = 40 \text{ m}$
 $t = 5 \text{ s}$
- a) 6 m/s
b) 7 m/s
c) 8 m/s
d) 9 m/s
12. Stating that a man is traveling north at 30 m/s is an statement of his
- a) speed
b) velocity
c) accleration
d) endurance
13. If Mr. Deem is walking 3 m/s to the north and Mr. Silvio is walking 3 m/s to the west, then which of the following is true
- a) They have the same speed and different velocities
b) They have the same velocity and different speeds
c) They have the same speed and velocity
d) They have different speeds and different velocities
14. Any change in SPEED or DIRECTION is referred to as ____.
- a) Acceleration
b) Speed
c) Velocity
d) Motion
15. Which of the following is a unit for acceleration?
- a) km/s
b) m/s^2
c) mi/hr
d) ft
16. When a car goes around a corner at 20 mph, why do we say it accelerates?
- a) The car is accelerating because of the velocity is constant
b) The car accelerates because it's going 20 mph
c) Cars always accelerate when they are in motion
d) The car is accelerating because it's changing direction

17.



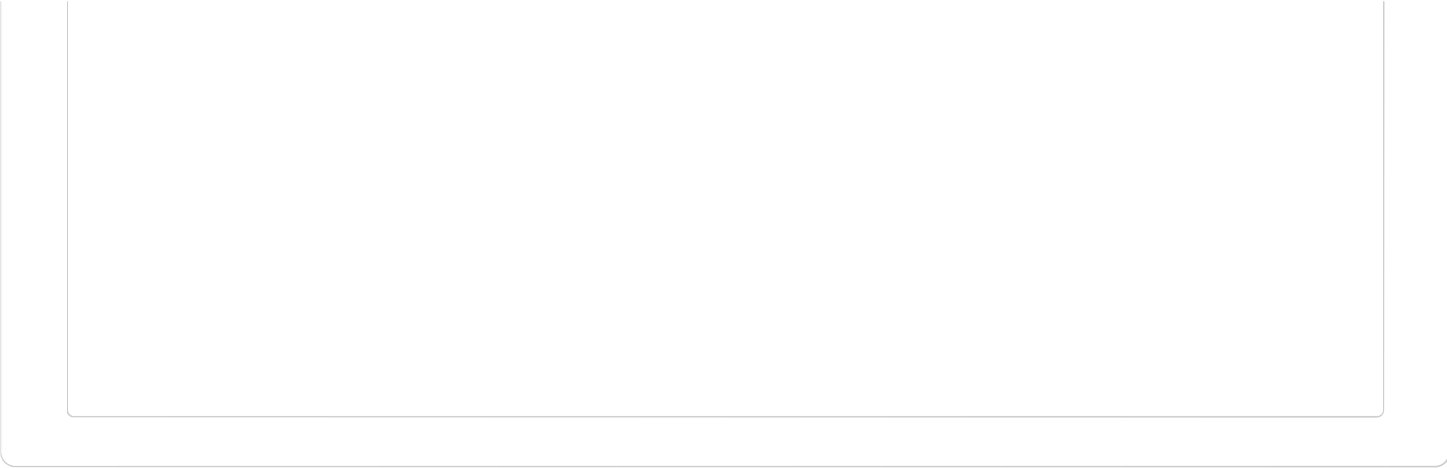
A roller coaster accelerates from an initial velocity of 0 m/s to a final velocity of 12 m/s over 4 seconds. What is the coaster's average acceleration?

a) 0 m/s²b) 12 m/s²c) 3 m/s²

d) 4 m/s

Answer Keys

- | | | |
|--|--|------------------------------|
| 1. a) in motion | 2. b) reference point | 3. a) distance / time |
| 4. b) 0.5 m/s | 5. d) An object moving at constant speed | 6. a) An object speeding up |
| 7. a) An object stopped | 8. c) velocity | 9. c) m/s |
| | b) object moving at constant speed | |
| 10. b) 2 m/s | 11. c) 8 m/s | 12. b) velocity ² |
| 13. a) They have the same speed and different velocities | 14. a) Acceleration | 15. b) m/s |
| 16. d) The car is accelerating because it's changing direction | 17. c) 3 m/s ² | |



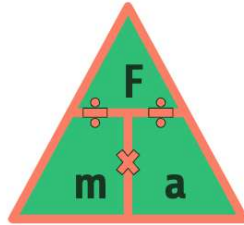
Name Class Date **F=ma practice**

Total questions: 12

Worksheet time: 26mins

1.

$$F = ma \text{ OR}$$



What net force is required to accelerate a car at a rate of 2 m/s^2 if the car has a mass of 3,000 kg?

a) 2 m/s^2

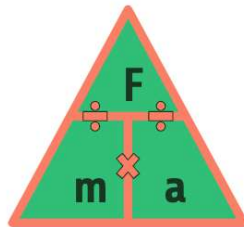
b) 6,000 N

c) 6,000 kg

d) 1,500 N

2.

$$F = ma \text{ OR}$$



What force does Mr. Demers need to produce in order to throw his 10 kg bowling ball down an alleyway with an acceleration rate of 3 m/s^2 ?

a) 30 N

b) 30 m/s^2

c) 3.33 N

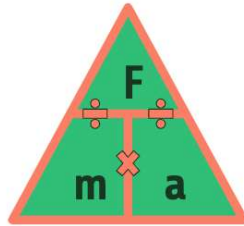
d) 0.3 N



Answer keys are added in the last page

3.

$$F = ma \text{ OR}$$



What is the mass of a falling rock if it produces a force of 147 N? (assume acceleration of gravity is 9.8 m/s^2)

a) 15 kg

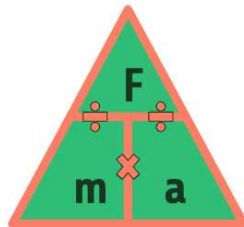
b) 15 N

c) 0.067 kg

d) 1,440.6 kg

4.

$$F = ma \text{ OR}$$



What is the mass of Mr. Sullivan's truck if it produces a force of 14,000 N while accelerating at a rate of 5 m/s^2 ?

a) 2,800 kg

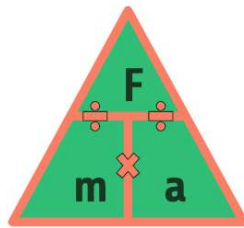
b) 280 kg

c) 70,000 kg

d) 2,800 N

5.

$$F = ma \text{ OR}$$



What is the acceleration of a softball if it has a mass of 0.5 kg and hits the catcher's glove with a force of 25 N?

a) 50 m/s^2 b) 12.5 m/s^2

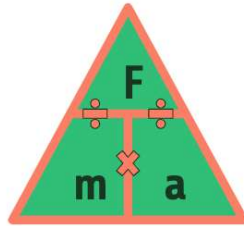
c) 50 N

d) 0.2 m/s^2 

Answer keys are added in the last page

6.

$$F = ma \text{ OR}$$

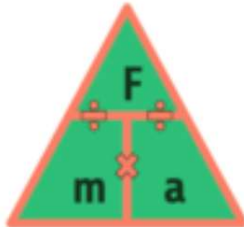


Karen's car has a mass of 2,000 kg. If her car exerts a force of 8,500 N, how fast will it accelerate?

- a) 4.25 m/s² b) 0.24 m/s²
 c) 17,000,000 m/s² d) 42.5 m/s²

7.

$$F = ma \text{ OR}$$



If a force of 26 N is exerted on two balls, one with a mass of 0.52 kg and the other with a mass of 0.78 kg, which ball will have the greater acceleration? (F=ma)

- a) The one with a mass of .78 kg will have the greatest acceleration. b) The one with a mass of .52 kg will have the greatest acceleration.
 c) They will both accelerate at the same rate.

8.

Object	Mass
1	50 kg
2	100 kg
3	75 kg
4	20 kg

The masses of four objects are given in this table. If all objects are struck with the same amount of force, which one will have the greatest acceleration?

- a) Object 1
 c) Object 3



Answer keys are added in the last page

9.

$$F = ma \text{ OR}$$

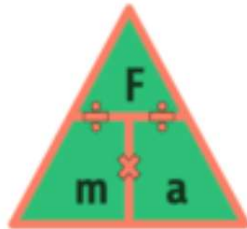


A student pushes a box to right with a force of 10N while a young boy pushes the same box to the left with a force of 8N. If the box weighs 22 kg, what is the acceleration of the box?

- a) 44 m/s^2 b) 2N
c) 0.09 m/s^2 d) 220 m/s^2

10.

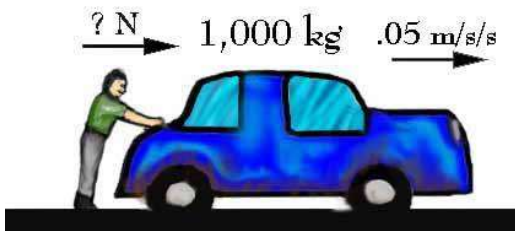
$$F = ma \text{ OR}$$



Your car has a mass of 2500 kg and a force of 5000 N. How fast will it accelerate?

- a) 20 m/s^2 b) 0.5 m/s^2
c) 2 m/s^2 d) 120 N

11.



How much force the man will need to exert to move the car.

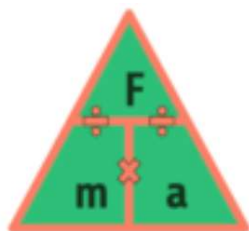
- a) 5000 N b) 50 N
c) 20,000 N d) 500 N



Answer keys are added in the last page

12.

$$F = ma \text{ OR}$$



If an object was accelerating at 5 m/s^2 , and a force of 10 newtons was required to accelerate it, what was the object's mass?

- a) 50 kg
- b) 2 kg
- c) 0.5 kg
- d) 5 kg



Answer keys are added in the last page

Answer Keys

- | | | |
|--|--------------------------|----------------------------|
| 1. b) 6,000 N | 2. a) 30 N | 3. a) 15 kg |
| 4. a) 2,800 kg | 5. a) 50 m/s^2 | 6. a) 4.25 m/s^2 |
| 7. b) The one with a mass of .52 kg will have the greatest acceleration. | 8. d) Object 4 | 9. c) 0.09 m/s^2 |
| 10. c) 2 m/s^2 | 11. b) 50 N | 12. b) 2 kg |



Answer keys are added in the last page



Answer keys are added in the last page

Name

Challenge 1: Describing Motion

Total questions: 15

Worksheet time: 52mins

Class

Date _____

1. You can measure _____ by dividing distance over time.
a) motion
b) position
c) speed
d) velocity
2. When runners are running around a track, they are constantly changing their _____.
a) motion
b) speed
c) velocity
d) force
3. _____ is when there is a change in a object's position as compared to other objects around it.
a) motion
b) position
c) speed
d) velocity
4. An object's location is its _____.
a) force
b) motion
c) velocity
d) position
5. Speed is a measure of the _____ an object travels in a certain amount of time.
a) distance
b) force
c) motion
d) velocity



Answer keys are added in the last page

6. North, south, east, west, right, left, up and down are all words used to describe _____.

- a) direction
- b) motion
- c) position
- d) speed

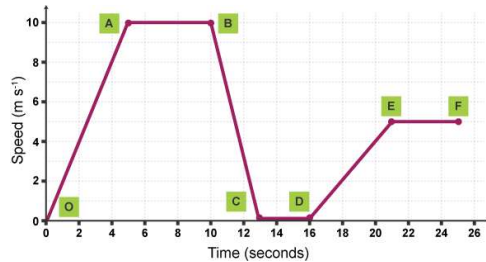
7.

2-km Race Results	
Runner 1	8 min 32 s
Runner 2	10 min 50 s
Runner 3	11 min 59 s

Which runner is the slowest?

- a) Runner 1
- b) Runner 2
- c) Runner 3
- d) None of the runners

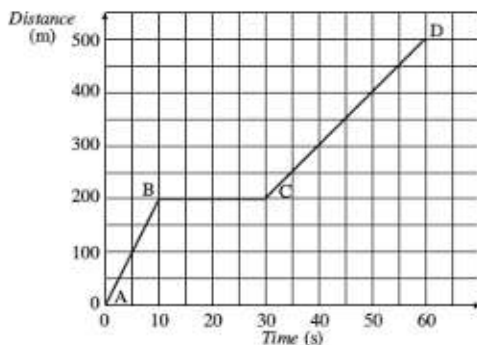
8.



What is happening to the object from point A to point B? (Pay attention to what type of graph it is)

- a) It stopped moving
- b) It's accelerating
- c) It is moving at a constant speed
- d) It is decelerating

9.



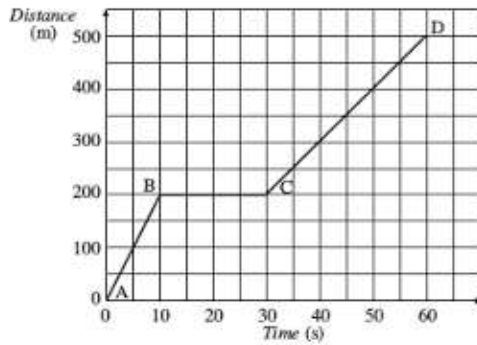
What happens to the object between points B and C?

- a) It moves at a constant speed
- c) It stops moving



Answer keys are added in the last page

10.



What is the total speed for the object after 60 seconds?

- a) 500 m/s
- b) 60 m/s
- c) 8.33 m/s
- d) 300 m/s

11. LT5: What is velocity?

- a) Time + Distance
- b) Speed in a given direction
- c) A fast dinosaur
- d) The direction a storm is moving

12. LT5: The rate at which velocity CHANGES is:

- a) acceleration
- b) speed
- c) direction
- d) physics

13. On a distance-versus-time graph, a straight line ALWAYS indicates that an object's speed is _____.

- a) constant
- b) zero
- c) increasing
- d) decreasing

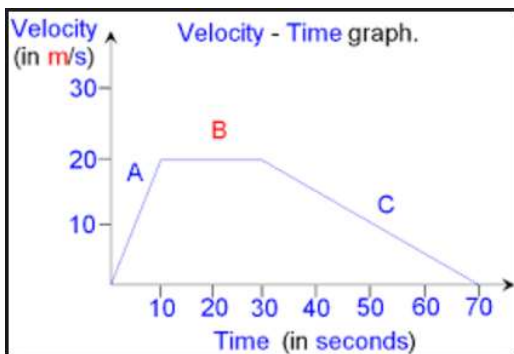
14. On a distance vs. time graph, the steeper the slope _____

- a) the slower the speed
- b) the faster the speed
- c) less acceleration
- d) greater acceleration



Answer keys are added in the last page

15.



This is a velocity-time graph. What is the object doing in segment B?

- a) Positive acceleration
- b) Negative acceleration
- c) Constant Velocity
- d) Not moving



Answer keys are added in the last page

Answer Keys

- | | | |
|-----------------|--|--------------------------|
| 1. c) speed | 2. c) velocity | 3. a) motion |
| 4. d) position | 5. a) distance | 6. a) direction |
| 7. c) Runner 3 | 8. c) It is moving at a constant speed | 9. c) It stops moving |
| 10. c) 8.33 m/s | 11. b) Speed in a given direction | 12. a) acceleration |
| 13. a) constant | 14. b) the faster the speed | 15. c) Constant Velocity |



Answer keys are added in the last page



Answer keys are added in the last page

Name Class Date **Momentum**

Total questions: 20

Worksheet time: 11mins

1. The momentum of an object depends upon the object's _____ & _____.

- a) size and shape
- c) mass and velocity

- b) mass and speed
- d) mass and energy

2. Which has more momentum: a car stopped at a red light or a bike moving at 15 mph?

- a) car
- c) they are equal

- b) bike
- d) cannot determine using the info provided

3.



In any collision (crash) the _____ is ALWAYS constant

- a) Total Momentum
- c) total Velocity

- b) total speed
- d) Energy



Answer keys are added in the last page

4. Which of the following has the MOST momentum?
- a) rolling ping-pong ball
 - b) rolling bowling ball
 - c) rolling soccer ball
 - d) rolling basketball
5. If an object has a mass of 20 kg and a velocity of 4 m/s, what is the momentum of the object?
- a) 80 kgm/s
 - b) 4 kgm/s
 - c) 5 kgm/s
 - d) .2 kgm/s

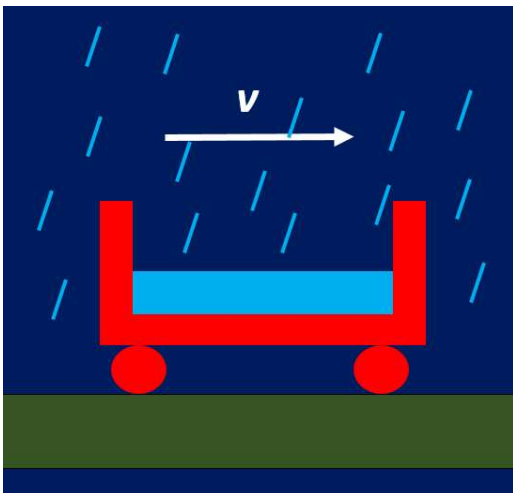
6.



If a net force is acting on an object,

- a) its velocity must be constant
- b) its velocity must be changing
- c) its mass must be changing
- d) its acceleration = 0

7.



What happens to the speed of the wagon as the rain collects inside of it?

- a) it decreases
- b) it remains constant
- c) it increases



Answer keys are added in the last page

8. Which takes more force to catch, a bowling ball or a ping pong ball?
- a) bowling ball because it has more momentum
 - b) ping pong ball because it has more momentum
 - c) both require the same amount of force when catching
 - d) bowling ball because it has less momentum
9. A runner has a momentum of 670 kg m/s and is traveling at a velocity of 9 m/s. What is his mass?
- a) 6030 kg
 - b) 0.0134 kg
 - c) 74.4 kg
 - d) 80 kg
10. If you double the velocity of an object, then its momentum will _____.
- a) will double
 - b) will half
 - c) will quadruple (x4)
 - d) will be quartered (x 1/4)
11. The total momentum before a collision is _____ the total momentum after a collision.
- a) equal to
 - b) less than
 - c) more than
 - d) It depends on the type of collision
12. Which of the following has the least amount of momentum?
- a) An ant walking along the ground
 - b) An ant at rest
 - c) An elephant walking
 - d) An elephant running
13. What is the unit for momentum?
- a) m/sec
 - b) kg/sec
 - c) kg/m
 - d) kg m/sec



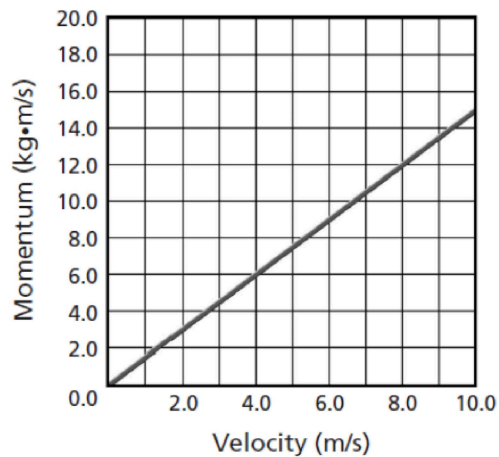
Answer keys are added in the last page

14. When a bat collides with a baseball, the momentum of the bat
- a) transfers to the momentum of the ball
 - b) transfers from the momentum of the ball
 - c) does not transfer from the bat to the ball
 - d) does not transfer from the ball to the bat
15. If 2 objects collide and stick together, what will happen to their velocities?
- a) velocities will increase
 - b) velocities will decrease
 - c) velocities will stay the same
 - d) none of the above
16. The momentum of a truck traveling in a straight line at 25 m/s is 37,500 kg m/s. What is the truck's mass?
- a) 937,500 kg
 - b) 937,500 N
 - c) 1,500 N
 - d) 1,500 kg
17. Which object listed below has the greatest momentum?
- a) A 0.05 kg object rolling at 0.2 m/s
 - b) A 0.15 kg object rolling at 2 m/s.
 - c) A 0.15 kg object rolling at 1 m/s
 - d) A 0.4 kg object rolling at 2 m/s.
18. The definition of momentum is
- a) The size of an object
 - b) The velocity of an object
 - c) Mass in Motion
 - d) A comparison between two objects



Answer keys are added in the last page

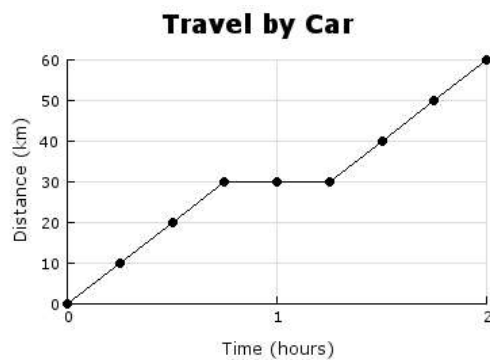
19.



what is the objects momentum for 8 m/s

- a) 6
- b) 8
- c) 10
- d) 12

20.



According to this graph, between 0.75 hours and 1.25 hours, what was occurring?

- a) The object was traveling at a constant speed.
- b) The object was traveling at an accelerated speed.
- c) The object was traveling at an average speed.
- d) The object was stopped.



Answer keys are added in the last page

Answer Keys

- | | | |
|----------------------------|---|-------------------------------------|
| 1. c) mass and velocity | 2. b) bike | 3. a) Total Momentum |
| 4. b) rolling bowling ball | 5. a) 80 kgm/s | 6. b) its velocity must be changing |
| 7. a) it decreases | 8. a) bowling ball because it has more momentum | 9. c) 74.4 kg |
| 10. a) will double | 11. a) equal to | 12. b) An ant at rest |
| 13. d) kg m/sec | 14. a) transfers to the momentum of the ball | 15. b) velocities will decrease |
| 16. d) 1,500 kg | 17. d) A 0.4 kg object rolling at 2 m/s. | 18. c) Mass in Motion |
| 19. d) 12 | 20. d) The object was stopped. | |



Answer keys are added in the last page



Answer keys are added in the last page

Describing Motion

Total questions: 17

Worksheet time: 10mins

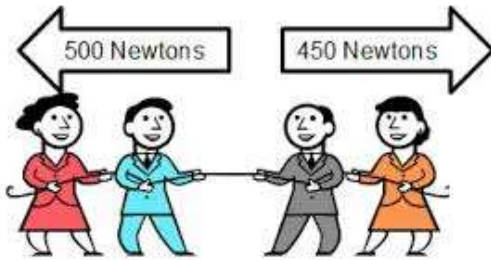
Name Class Date

1. A place or object used for comparison to determine if another object is in motion is called a
 - a) comparison point
 - b) reference point
 - c) point of view
 - d) motion detector
2. An object is in motion if it changes position relative to
 - a) a reference point
 - b) speed
 - c) the distance traveled
 - d) constant speed
3. Relative motion
 - a) the motion of an object in comparison to other objects in a specific frame of reference
 - b) the point of view used to measure the position and movement of objects
 - c) how fast something moves
 - d) the distance
4. What is force?
 - a) the PUSH or PULL on an object
 - b) the motion an object creates
 - c) going fast
 - d) Yoda
5. The sum of all forces acting on an object.
 - a) Contact Force
 - b) Balanced Force
 - c) Unbalanced Force
 - d) Net Force



Answer keys are added in the last page

6.

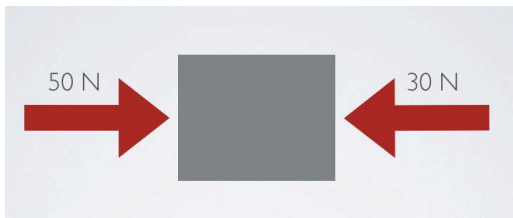


Balanced or unbalanced?

a) balanced

b) unbalanced

7.



How will this object move?

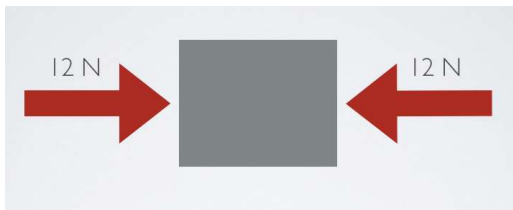
a) It won't move.

b) It will move to the right.

c) It will move to the left.

d) It will move up.

8.



How will this object move?

a) It won't move.

b) It will move to the right.

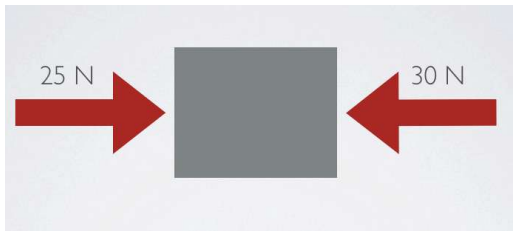
c) It will move to the left.

d) It will move in both directions.



Answer keys are added in the last page

9.



What is the net force?

- a) 30 N left
- b) 25 N right
- c) 5 N left
- d) 55 N right

10.



Calculate the Net Force.

- a) 60N, Left
- b) 40N, Right
- c) 0N
- d) 60N, Right

11. If forces are going in the same direction, you should

- a) add the forces
- b) subtract the forces
- c) multiply the forces
- d) divide the net force

12. Unbalanced forces

- a) movement of electrons in motion
- b) no change in motion
- c) causes a change in motion
- d) push or pull on an object

13. A contact force is from

- a) objects physically touching
- b) far apart objects
- c) not touching object
- d) always a pull

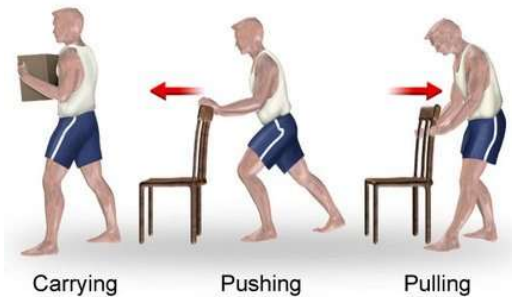


Answer keys are added in the last page

14. A non-contact force is between

- a) two objects that aren't touching
- b) two objects that are touching
- c) the ground and wheels
- d) you and me

15.



The three examples pictured are of

- a) Non-contact Forces
- b) Contact Forces

16.



The force between the phone and the mount is a

- a) contact force
- b) non-contact force



Answer keys are added in the last page

17.



The force between the two people through the rope is

- a) Contact Pull
- b) Non-contact Pull
- c) Contact Push
- d) Non-contact Push



Answer keys are added in the last page

Answer Keys

- | | | |
|-------------------------------------|---|---|
| 1. b) reference point | 2. a) a reference point | 3. a) the motion of an object in comparison to other objects in a specific frame of reference |
| 4. a) the PUSH or PULL on an object | 5. d) Net Force | 6. b) unbalanced |
| 7. b) It will move to the right. | 8. a) It won't move. | 9. c) 5 N left |
| 10. d) 60N, Right | 11. a) add the forces | 12. c) causes a change in motion |
| 13. a) objects physically touching | 14. a) two objects that aren't touching | 15. b) Contact Forces |
| 16. b) non-contact force | 17. a) Contact Pull | |



Answer keys are added in the last page



Answer keys are added in the last page