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GR 9 PHYSICS (مراجعه نهائية ما قبل الامتحان الفصل الاول) MR: JEHAD ALI 0507134131

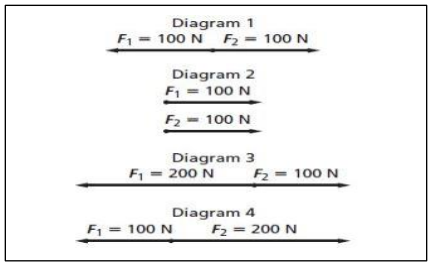
1- Two horizontal forces, one 180.0 N and the other 200.0 N, are exerted in opposite directions on a boat on a lake. What is the net horizontal force on the boat?
A 380.0 N
B 200.0 N
C 180.0 N
D 20.0 N

2-Two dogs play tug-of-war with a rope toy that has a mass of 0.50 kg. If one dog pulls on the toy with a force of 140.0 N, and the other dog pulls in the opposite direction with a force of 138.0 N, what is the horizontal acceleration of the toy?
A 9.8 m/s2
B 8.0 m/s2
C 4.9 m/s2
D 4.0 m/s2

3. What is the force of gravity on a person who has a mass of 80.0 kg?
A 176 N
B 686 N
C 784 N
D 801 N

4-A 60.0-kg boy rides in an elevator that accelerates upward at 1.80 m/s2. What is the net force exerted on the boy?
A 9.8 N
B 108 N
C 480 N
D 588 N

5-The free-body diagrams below show four ways that two different forces could be exerted on an object. In which diagram is the object in equilibrium?
A Diagram 1
B Diagram 2
C Diagram 3
D Diagram 4



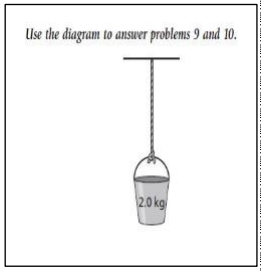
6. Two teams, the Fifes and the Drums, are 6-playing tug-of-war. Each team has 3 members. Both teams exert a force of 2002 N on the rope. The rope is not moving. What is the net force on the rope?
A 0 N
B 333 N
C 2002 N
D 4004 N

7. Two people are paddling together in a canoe. Each exerts a horizontal force of 238 N toward the back of the canoe. What is the net horizontal force on the canoe?
A 119 N
B 238 N
C 476 N
D 952 N

8. Refer to item **7** above. If the combined weight of the canoe and the two paddlers is 190 kg, what is the acceleration of the canoe?
A 0.63 m/s2
B 1.3 m/s2
C 2.5 m/s2
D 5.0 m/s2

Use the diagram to answer problems 9 and 10.

9. The figure shows a bucket hanging motionless from a rope. Assume that the rope has no mass. What is the net force on the bucket?
A 0.0 N
B 2.0 N
C 9.8 N
D 2.0_101 N



10. What is the tension on the rope?
A 9.8 N
B 10 N
C 14.2 N
D 20 N

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11-Tino is designing an experiment to investigate how sound waves are affected by the type of medium through which they travel. Which is the independent variable?
A frequency of waves
B speed of waves
C type of medium
D wavelength

12-To calculate the weight of an object in newtons, N, Tamala multiplies its mass of 0.82 kg times the acceleration due to gravity (9.80 m/s2). Which answer expresses the weight of the object with the correct degree of precision?
A 8 N
B 8.0 N
C 8.04 N
D 8.036 N

13)For the situation pictured below, if the table had a mass of 35 kg, and F1 = 20.0 N and F2 = 30.0 N, what would the acceleration be

A) -3.5 m/s2 B)0.70m/s2

C) 1.4 m/s2 D) -0.28m/s2

14)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

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

Need a Hint?

A) 22 kg

B) 50 kg

C) 100 kg

D) 75 kg

17)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

18)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

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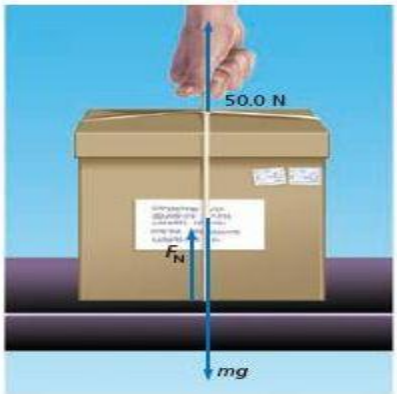
19)If the box pictured below has a mass of 6.0 kg, what will the normal force of the table on the box be



A) 50 N B)8.8N

C) 160 N D)9.8N

20)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) 9.8N

C) 50 N D) 110N

21)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

22)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

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

A) inertia B) equilibrium

C) momentum D) acceleration

24)

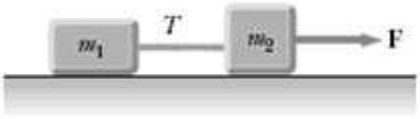


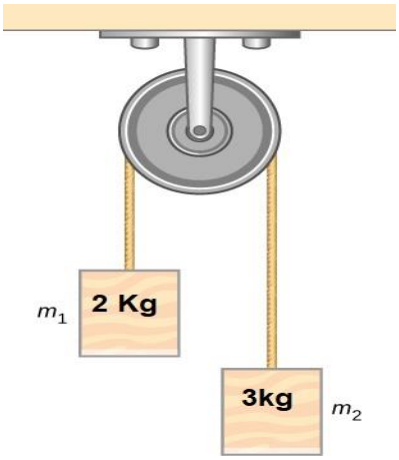
Figure P5.45

Two Blocks connected by a rope of negligible mass. In the figure m1=2kg , m2= 6kg two blocks move on a frictionless horizontal tabletop by external force F=9N

A-) DRAW a free body diagram for each block

B) Determine the acceleration of the system

C) Determine the tension T in the rope

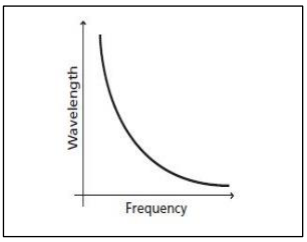


A-) DRAW a free body diagram for each block

B) Determine the acceleration of the system

C) Determine the tension T in the rope

3-The graph shows the relationship between the frequency and wavelength of light waves.



Which type of relationship do the two variables exhibit?
A inverse
B linear
C parabolic
D quadratic

4. The speed of an ostrich is measured to be 63 km/h. Using correct significant figures, what is this speed in meters per second?
A 17 m/s
B 17.5 m/s
C 18 m/s
D 18.5 m/s

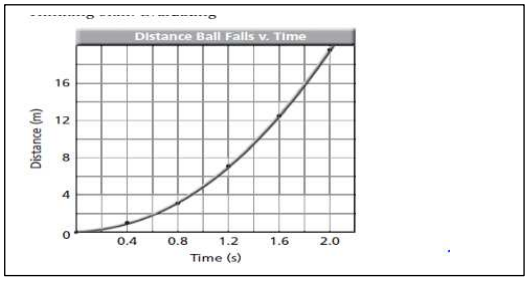
-Ming estimated the average velocity of a vehicle to be 26.82 ±0.20 m/s. Four other students also estimated the average velocity of the vehicle. Their estimates are shown in the table. ***Use the table to answer problems 6 and 7.***

6-Which student's estimate is more precise?
A student 1
B student 2
C student 3
D student 4

Estimates of Average Velocity

Student	Estimate (m/s)
1	25.34 ± 0.25
2	26.42 ± 11.5
3	27.15 ± 11.5
4	27.22 ± 11.5

7-Which student's estimate is more accurate?
A student 1 B-Student 2
C- student 3 D- Student 4



8-The graph above shows a nonlinear relationship. Which equation below 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 $m = \frac{\Delta y^2}{\Delta x^2}$

9- convert 10 cm to km

A-0.001Km

B-0.0001Km

C-0.01Km

d-0.00001km

10) 6.744+7.48+7.10=

Select the answer to this calculation, expressed to the correct precision

A-21.3

B-21

C-21.324

D-21.32

11) 5.667 X 8.33

Select the answer to this calculation, expressed to the correct precision

A- 47 B) 47.2
B- 47.22 D) 47.223

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12-State the number of significant figures in each of the following measurement

A-0.056: B- 6000: C- $6x10^8$ m:

D-506000: E-0.550000: F-3.14±0.2S

13-

Select the measurement with uncertainty of the volume of liquid in this conical flask.

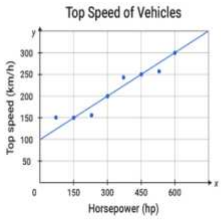
- 100 mL ± 25 mL
- 100 mL ± 12.5 mL
- 125 mL ± 12.5 mL
- 125 mL ± 25 mL

14-

Select the measurement with uncertainty of volume of liquid in this beaker.

- 200 mL ± 50 mL
- 200 L ± 25 mL
- 200 mL ± 25 L
- 200 L ± 25 mL
- 200 mL ± 25 mL

15-



What is the most appropriate equation for the line of best fit for this graph?

- $y = \frac{x}{2} + 100$
- $y = \frac{x}{3} + 100$
- $y = \frac{x}{3} - 100$
- $y = \frac{x}{2} - 100$

16-FILL THE TABLE

BASE QUANTITY	BASE UNITE
Length(L)	
MASS(m)	
Time(t)	
Temperature(T)	
Amount of a substance	
Electric current	
Luminous intensity	

17-The measurement shown on the figure above include the uncertainty in your answer

A- 12.24±0.05V

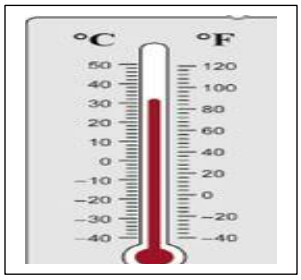
B-12.24±0.04V

C-12.24±0.5V

D-12.24±0.005V

Referee to the figure above (Ans 18 ,19)

18-What is the precision of the instrument?



A- 2 c
B- 1c
C- 0.5 c
D- 0.25c

19-The measurement shown on the figure above include the uncertainty in your answer

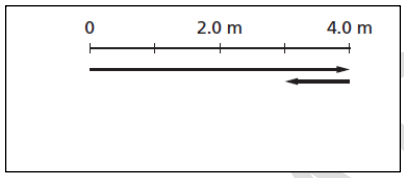
A-30±2 C

B-30±1 C

C)30±0.5C

D)30±0.25C

Use the graph to answer problems 1 and 2.
The lines on the graph represent displacement vectors for the route along which a person moves.



1. What is the total distance traveled?

A 3.0 m B 4.0 m

C 5.0 m D 6.0 m

2. What is the person's displacement for the trip?
A 0.0 m B- 3.0m c- 4.0m D 5.0m

3. Which is a vector quantity?

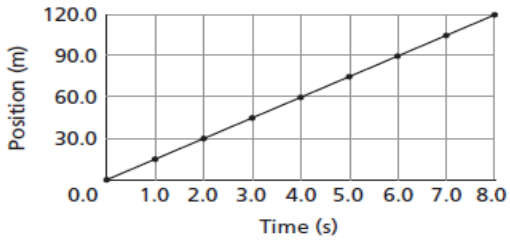
A distance

B position

C time

D velocity

4. The position-time graph represents part of a car trip along a straight road.

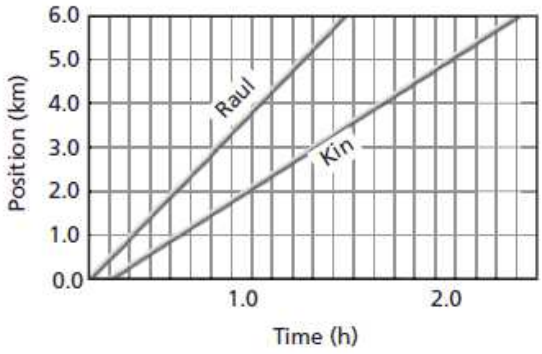


What is the average velocity of the car for the first 8.0 s?

A 20 m/s B 15m/s

C 12 m/s D 8m/s

Use the following graph to answer problems 5 and 6



5. The position-time graph represents two walkers. Which walker is the faster one? How do you know?
A Raul, because according to the graph, he started first.
B Kin, because his position-time graph looks longer.
C Raul, because the slope of his position time is steeper, meaning he goes farther in a given time period.
D Kin, because the area under his graph is greater.

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6-Which equation below best represents the average velocity of the walker, Raul.

A $v = \frac{4\ \text{km}}{1\ \text{h}}$

B $v = \frac{1\ \text{h}}{4\ \text{km}}$

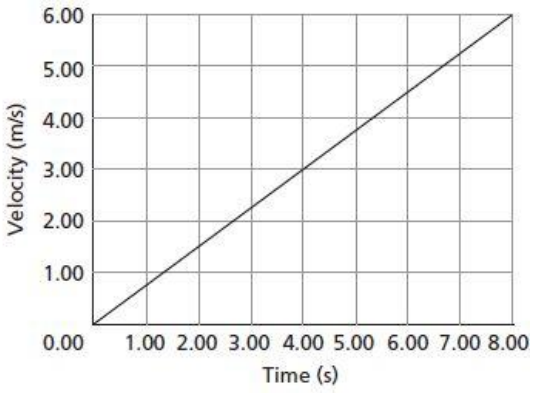
C $v = \frac{5\ \text{km}}{2\ \text{h}}$

D $v = \frac{1\ \text{km}}{2\ \text{h}}$

7-A bus leaves the terminal and travels for 120 s at an average velocity of 10.0 m/s before it stops at its first destination. How far from the terminal is the first destination?
A 10 m
B 12 m
C 120 m
D 1200 m

8. A bicyclist maintains a constant velocity of 4.0 m/s for a distance of 480 m. How long does it take the bicyclist to travel this distance?
A 8 s
B 120 s
C 476 s
D 1920 s

1. The graph shows the velocity of a bicycle as the rider moves away from a curb.



Based on the slope of the graph, what is the average acceleration of the bicycle?
A 6.00 m/s2
B 3.00 m/s2
C 1.33 m/s2
D 0.750 m/s2

2. A car's velocity decreases from 22.0 m/s to 10.0 m/s over a period of 3.0 s. What is the car's average acceleration?
A _4.0 m/s2
B _3.0 m/s2
C 3.0 m/s2
D 4.0 m/s2

3. If a sprinter accelerates from rest at a constant rate of 2.0 m/s2, how fast will she be running after 4.0 s?
A 8.0 m/s
B 4.0 m/s
C 2.0 m/s
D 0.5 m/s

4. A graph shows position as a function of time for an object moving with constant acceleration. What does the slope of the graph represents?
A acceleration **B** displacement
C time **D** velocity

5. A pebble falls from a bridge into the river below. If the pebble falls for 1.20 s, what is its velocity when it hits the water?
A _8.17 m/s
B _8.40 m/s
C _11.0 m/s
D _11.8 m/s

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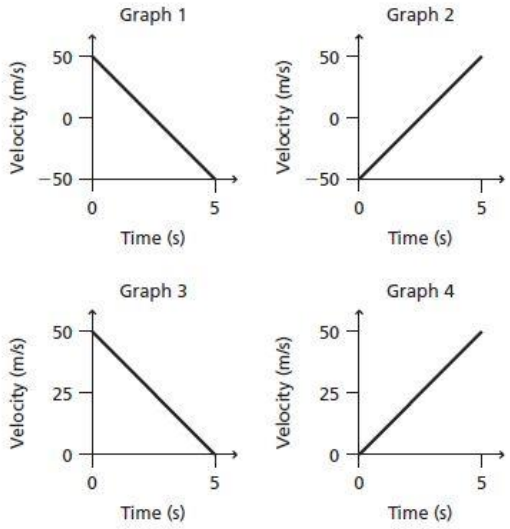
Use the graphs to answer questions 6 and 7.



6. Which graph might represent the acceleration of a jet plane moving down a runway from a rest position?
A Graph 1
B Graph 2
C Graph 3
D Graph 4

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?
A Graph 1 B-Graph2
B Graph 3 D-Graph 4

8. A car with an initial displacement of 10.0 m and an initial velocity of 16.0 m/s accelerates at an average rate of 0.50 m/s2 for 4.0 s. What is the car's displacement after 4.0 s?

A 68 m
B 78 m
C 82 m
D 88 m

9. A racing cyclist is traveling at 5.36m/s when she speeds up with a constant acceleration of 0.67 m/s2. What is her velocity after 5.00 s?
A 3.4 m/s2
B 8.611m/s
C 6.38m/s
D 140 m/s2

_____ 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

Acceleration describes the rate of change in

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

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

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

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

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

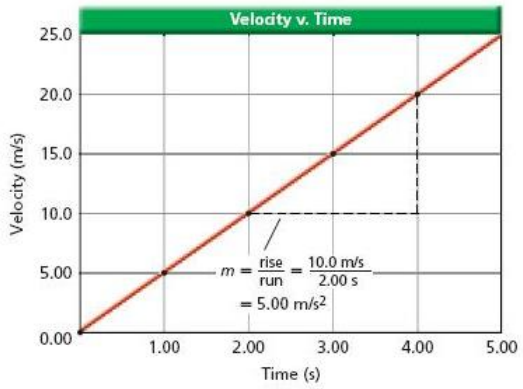
A) average velocity

B) instantaneous velocity

C) instantaneous acceleration

D) displacement

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

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 × 103 m

B) 252 m

C) 5.41×102

D) 1.08 × 103 m

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

A car with a velocity of 30 m/s accelerates uniformly at the rate of 2.0 m/s2 for 10 s. What is its final velocity?

A) 50 m/s2

B) 40 m/s2

C) 40 m/s

D) 50 m/s

How long will it take an airplane at rest that accelerates uniformly at 2.5 m/s2 to reach the ground velocity of 7.0×101 m/s that is required for take off?

Need a Hint?

A) 28 s

B) 35 s

C) 11 s

D) 4 s

A car accelerates uniformly 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 $m/^s$

What is the minimum length runway needed to accommodate airplanes that can accelerate uniformly at 2.7 m/s2 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

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

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

A tennis ball is dropped from 1.5 m above the ground, . What is the ball's velocity when it hits the ground

A) -5.4 m/s

B) -5.4 m/s

C) -3.8 m/s

D) 3.8 m/s

Displacement is a change in _____.

A) speed

B) position

C) velocity

D) distance

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