

تم تحميل هذا الملف من موقع المناهج الإماراتية



مراجعة نهائية وفق الهيكل الوزاري منهج انسابير

موقع المناهج ← المناهج الإماراتية ← الصف التاسع المتقدم ← فيزياء ← الفصل الثاني ← ملفات متنوعة ← الملف

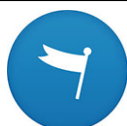
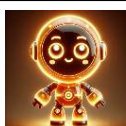
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ملفات اكتب للمعلم اكتب للطالب | اختبارات الكترونية | اختبارات | حلول | عروض بوربوينت | أوراق عمل
منهج انجليزي | ملخصات وتقارير | مذكرات وبنوك | الامتحان النهائي | للمدرس

المزيد من مادة
فيزياء:

إعداد: Zewin Adham

التواصل الاجتماعي بحسب الصف التاسع المتقدم



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

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

الهيكل الامتحاني الوزاري الجديد منهج انسابير

1

الهيكل الامتحاني الوزاري الجديد منهج انسابير المسار المتقدم

2

ورقة عمل درس الحركة الدائرية

3

ملخص وتدريبات درس حركة المقذوف

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عرض بوربوينت حل درس السرعة المتجهة النسبية


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Inspire Physics 9 ADV- EOT-2

مراجعة الهيكل انسبير فيزياء تاسع متقدم

UNITED ARAB EMIRATES
MINISTRY OF EDUCATION

2024-2025



Inspire Physics

UAE Edition

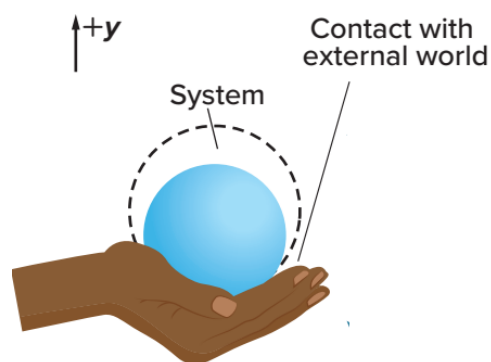
Grade 9 Advanced

Student Edition

أ/ أدھم زوین

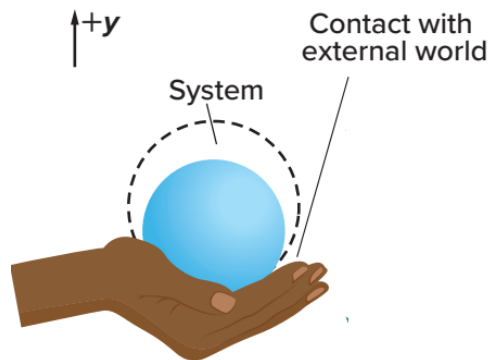
Q1. Sketch the free body diagram of an object and obtain the resultant force acting on it and describe its motion

In the following system if the hand is **not moving** which free body diagram is correct



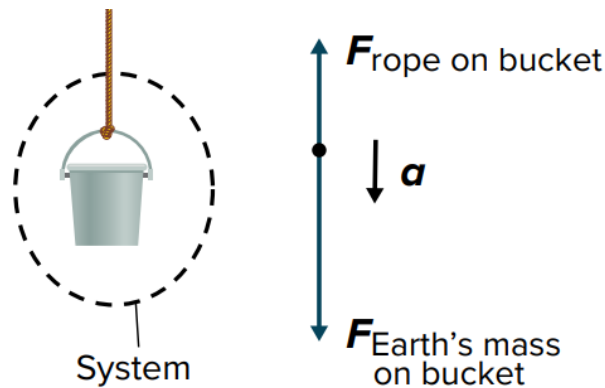
A		C	
B		D	

You hold a softball in the palm of your hand and **toss it up**. Which diagrams is correct while the ball is still touching your hand?

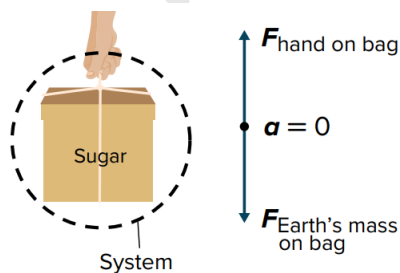
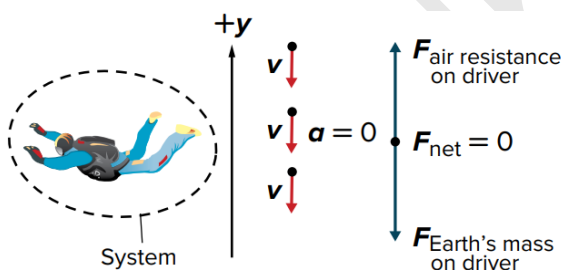


A		C	
B		D	

Which of the following is correct to describe the motion and forces affecting the following system



- A. water bucket is affected by balanced forces
- B. water bucket being lifted by a rope at a decreasing speed
- C. water bucket being lifted by a rope at a increasing speed
- D. water bucket being lifted by a rope at a constant speed



Q2. Formulate and explain Newton's third law of motion and express it in mathematical relationships, study the properties of the reaction pair and identify action-reaction pairs for different situations

When you lift a bowling ball upward with your hand, what forces act on the ball?

- a) Only the gravitational force of Earth
- b) Only the force of your hand
- c) Both the gravitational force of Earth and the force of your hand
- d) No forces act on the ball

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

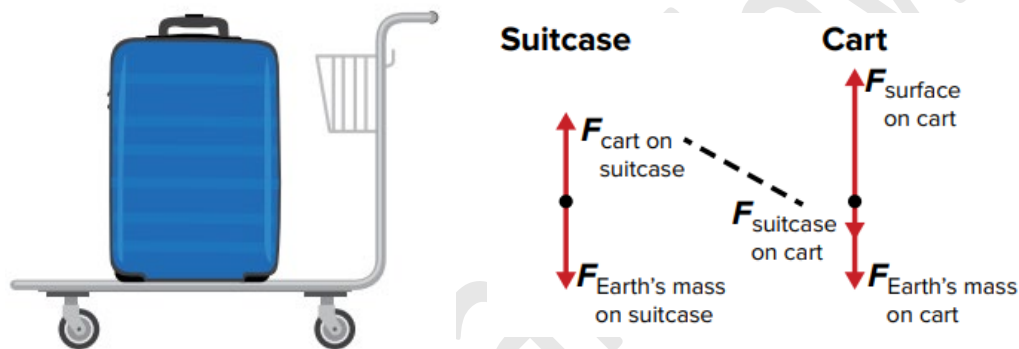
According to Newton's third law of motion, an action-reaction pair:

- a) Always acts on the same object
- b) Always acts on different objects in opposite directions
- c) Has the same magnitude and the same direction
- d) Acts on either object at a right angle to each other

If you lower a ball at an increasing speed, what happens to the forces acting on it?

- a) The force of the hand on the ball increases, causing upward acceleration
- b) The force of the hand on the ball decreases, allowing downward acceleration
- c) The gravitational force on the ball decreases
- d) The interaction pair forces disappear

A suitcase sits on a stationary airport luggage cart, as shown in the figure below.



The only force interaction pair in these diagrams is

- a) $F_{\text{Earth's mass on suitcase}}$ and $F_{\text{Earth's mass on cart}}$
- b) $F_{\text{cart on suitcase}}$ and $F_{\text{suitcase on cart}}$
- c) $F_{\text{suitcase on cart}}$ and $F_{\text{surface on cart}}$
- d) $F_{\text{Earth's mass on suitcase}}$ and $F_{\text{suitcase on cart}}$

Q3. Describe the apparent weight for an object accelerating vertically upward or downward (starts from rest, reaches a constant speed, then comes to a stop).
2. Calculate the apparent weight for an object accelerating vertically upward or downward.

What happens to the apparent weight of an object when it accelerates upward in an elevator?

- a) It increases
- b) It decreases
- c) It remains the same
- d) It becomes zero

When an object moves at a constant velocity (either upward or downward), its apparent weight is:

- a) Greater than its actual weight
- b) Less than its actual weight
- c) Equal to its actual weight
- d) Zero

What happens to the apparent weight of an object when the elevator is accelerating downward?

- a) It increases
- b) It decreases
- c) It remains constant
- d) It becomes negative

If an object is in free fall, what is its apparent weight?

- a) Equal to its real weight
- b) Weightless
- c) More than its actual weight
- d) Negative

An object of mass **50 kg** is accelerating upward at **2 m/s²**. What is its apparent weight? (Take $g = 9.8 \text{ m/s}^2$)

- a) 490 N
- b) 590 N
- c) 390 N
- d) 50 N

An object of mass **70 kg** is accelerating downward at **3 m/s²**. What is its apparent weight? (Take $g = 9.8 \text{ m/s}^2$)

- a) 686 N
- b) 196 N
- c) 980 N
- d) 476 N

Q4. Define an object's weight, relate the mass of an object to its weight, and calculate the weight of an object.

Which of the following best defines an object's **weight?**

- a) The amount of space an object occupies
- b) The force exerted by gravity on an object's mass
- c) The total amount of matter in an object
- d) The resistance of an object to changes in motion

You place a 4.0-kg watermelon on a spring scale. What will the scale read in newtons?

- a) 9.8 N
- b) 39.2 N
- c) 4.0 N
- d) 98.0 N

You place a 22.50-kg television on a spring scale, and the scale reads 235.2 N. What is the gravitational field strength?

- a) 9.8 N/kg
- b) 10.5 N/kg
- c) 8.7 N/kg
- d) 12.0 N/kg

Q5.1. Combine forces to find the net force acting on an object.

2. Relate the direction of the acceleration to the direction of the net force.

3. Explain that a net force applied to an object causes the object to accelerate or decelerate.

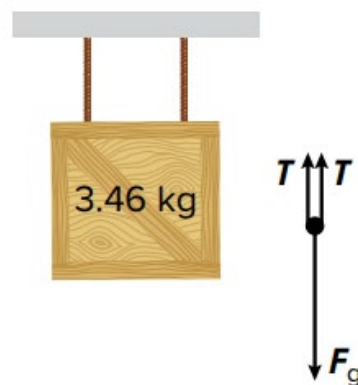
Three sled dogs pull on a **25 kg** sled with the following forces: Alutia pulls east with **35 N**, Seward pulls east with **42 N** and Kodiak pulls west with **53 N**.

What is the acceleration of the sled?

- a) 0.96 m/s^2 east
- b) 1.00 m/s^2 west
- c) 1.00 m/s^2 east
- d) 0.80 m/s^2 west

A **3.46-kg** block is suspended from two vertical ropes attached to the ceiling. Assuming the block is at rest, **what is the tension in each rope?**

- a) 16.9 N
- b) 33.9 N
- c) 9.8 N
- d) 3.46 N



A **5 N** force is applied to a sled of mass **20 kg**, producing an acceleration of **A**. When the same force is applied to a second sled, its acceleration is $\frac{1}{4}A$. **What is the mass of the second sled?**

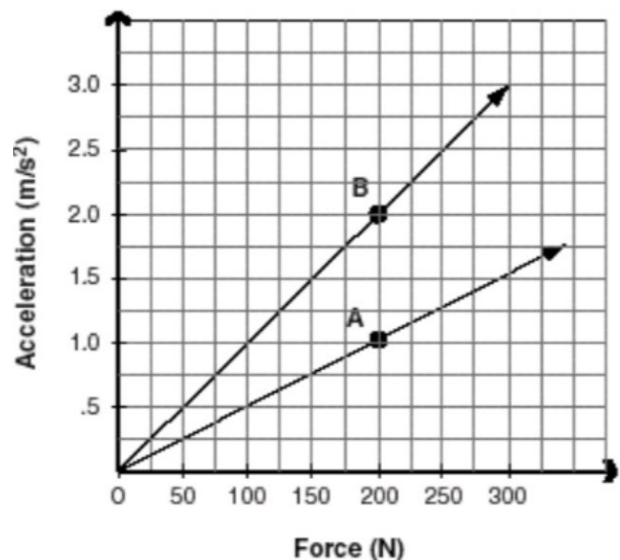
- a) 40 kg
- b) 60 kg
- c) 80 kg
- d) 100 kg

When an object, such as a airplane moving at constant speed and maintaining constant elevation, is in equilibrium, the net force is _____.

- A. positive
- B. zero
- C. negative
- D. changing

From the following curve wat is the ration of m_A/m_B

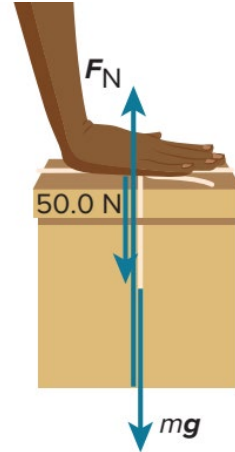
- A. 4
- B. $\frac{1}{2}$
- C. 2
- D. $\frac{1}{4}$



Q6. Define the normal force and use examples to show that the normal force is not always equal in magnitude to the weight of the object

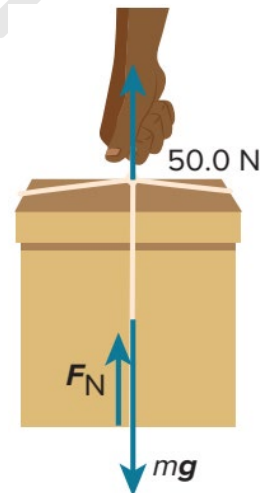
If the box pictured below has a mass of **6.00 kg**, what will **the normal force** of the table on the box be?

- A. 8.80 N
- B. 9.80 N
- C. 50.0 N
- D. 109 N



If the box not moving which of the following is **correct**?

A	$F_N = mg, F_{\text{net}} = 0$
B	$F_N < mg, F_{\text{net}} = 0$
C	$F_N > mg, F_{\text{net}} = 0$
D	$F_N < mg, F_{\text{net}} = 50 \text{ N}$



Which force acts perpendicularly to a surface that is in contact with another surface?

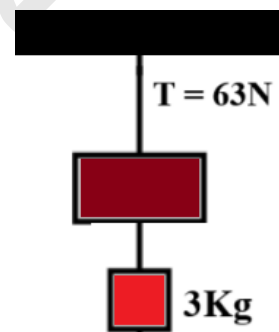
- A. friction
- B. tension
- C. normal
- D. gravity

A weight is hung from the ceiling of an elevator by a massless string. Under which circumstances will the tension in the cord be the **smallest**?

- A. The elevator is at rest.
- B. The elevator rises with increasing speed.
- C. The elevator descends with decreasing speed.
- D. The elevator descends with increasing speed.

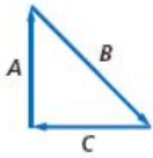
A block hangs from the ceiling by a massless rope. A **3.0-kg** block is attached to the first block and hangs below it on another piece of massless rope. The tension in the top rope is **63.0 N**. Find the tension in the bottom rope and the mass of the top block.

- A) $T_2 = 29.4 \text{ N}$, $m_1 = 3.43 \text{ kg}$
- B) $T_2 = 30.4 \text{ N}$, $m_1 = 3.50 \text{ kg}$
- C) $T_2 = 30.4 \text{ N}$, $m_1 = 5.00 \text{ kg}$
- D) $T_2 = 29.4 \text{ N}$, $m_1 = 4.20 \text{ kg}$



Q7. Determine the resultant of two or more vectors algebraically by adding the components of the vectors and find its magnitude ($R = \sqrt{R_x^2 + R_y^2}$) and direction ($\theta = \tan^{-1}(R_y/R_x)$).

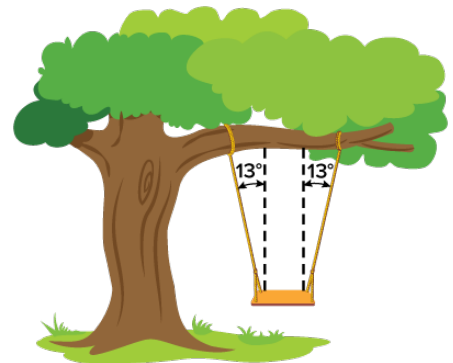
In the diagram below, if A's magnitude is 16 N and B's is 25 N, what is the magnitude of C?



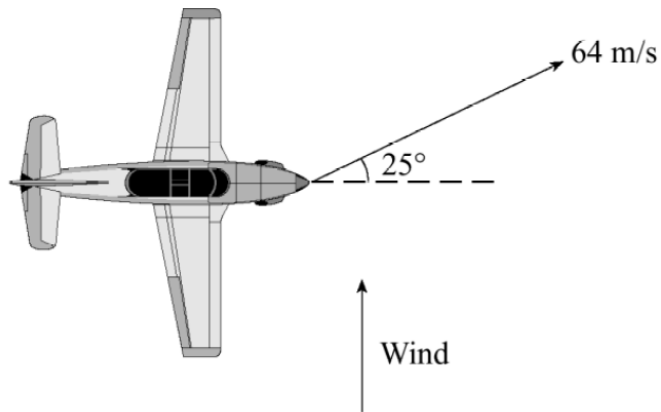
- A. ☐ 30 N
- B. ☐ 19 N
- C. ☐ 16 N
- D. ☐ 41 N

Two ropes tied to a tree branch hold up a child's swing as shown in Figure. The tension in each rope is 4.56 N. What is the combined force (magnitude and direction) of the two ropes on the swing?

- A- 4.44 N upward
- B- 8.88 N downward
- C- 4.44 N downward
- D- 8.88 N upward



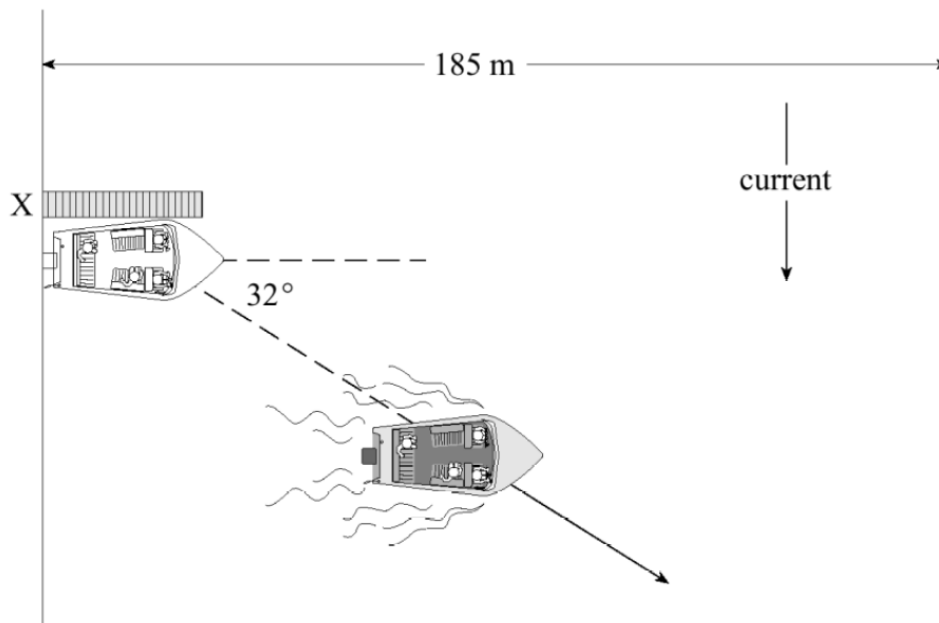
A pilot points an aircraft due east, while the wind blows from the south.



The resultant velocity of the aircraft over the ground is 64 m/s, 25° N of E . At what speed does the wind blow?

- A. 2.6 m/s
- B. 27 m/s
- C. 30 m/s
- D. 58 m/s

A boat which can travel at 5.6 m/s in still water heads due east across a river from a dock at X. The boat's resultant path is 32° south of east.



- a) What is the speed of the current?

A **475-N** trunk is resting on a plane inclined **40.0°** above the horizontal. Find the **components** of the **weight** force **parallel** and **perpendicular** to the plane.

- A. ☐ $F_{gx} = -364 \text{ N}$, $F_{gy} = -305 \text{ N}$
- B. ☐ $F_{gx} = 364 \text{ N}$, $F_{gy} = 305 \text{ N}$
- C. ☐ $F_{gx} = 305 \text{ N}$, $F_{gy} = 364 \text{ N}$
- D. ☐ $F_{gx} = -305 \text{ N}$, $F_{gy} = -364 \text{ N}$

Two ropes pull on a ring. One exerts a **50.0-N** force at **42.0°**, the other an **87.0-N** force at **70.0°**. What is the net force on the ring?

- A. 133 N at 60.0°
- B. 100 N at 60.0°
- C. 133 N at 30.0°
- D. 100 N at 56.0°

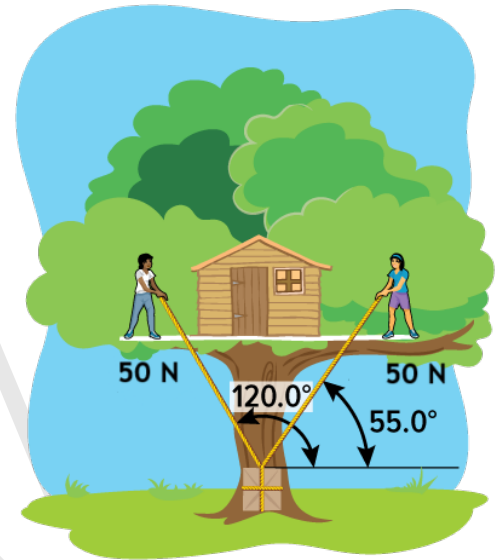
Two forces are exerted on an object. A **43-N** force acts exactly at **240°** and a **67-N** force acts at **300°**. What are the magnitude and direction of the equilibrant?

- A. 98 N at 7°
- B. 98 N at 277°
- C. 84 N at 97°
- D. 98 N at 97°

Two girls are going to sleep overnight in their tree house and are using some ropes to pull up a **6-kg** box containing their pillows and blankets. The girls stand on different branches, as shown in Figure, and pull at the angles with the forces indicated.

Find the **x-** and **y-components** of the initial net force on the box.

- A. $F_x = 0$, $F_y = 25.39$
- B. $F_x = 3.67$, $F_y = 84.25$
- C. $F_x = 3.67$, $F_y = 25.39$
- D. $F_x = 3.67$, $F_y = - 25.39$



Q8. Resolve a vector into two orthogonal components geometrically and arithmetically.

Repeated

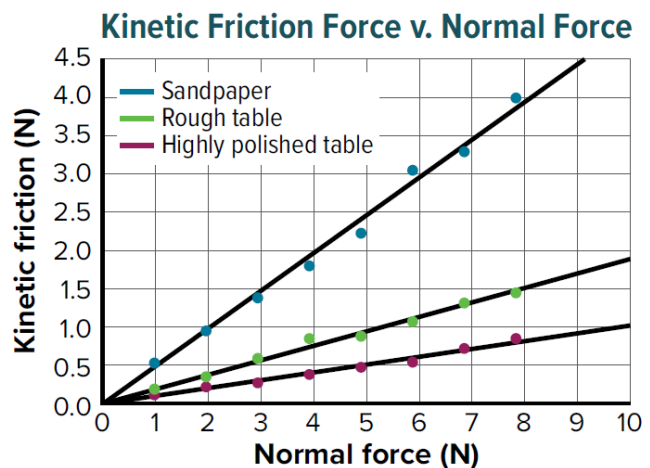
Q.9 Explore, experimentally or through software simulation, the relationship of the frictional force between two surfaces with the normal force and the nature of the two surfaces, and explain the decrease in friction after motion starts

You need to move a **105-kg** sofa to a different location in the room. It takes a **403-N** force to start the sofa moving. **What is the coefficient of static friction** between the sofa and the carpet?

- A) 3.83
- B) 0.39
- C) 0.26
- D) 0.56

From the following curves **what is the coefficient of kinetic friction** of sandpaper?

- A) 2.0
- B) 0.3
- C) 0.2
- D) 0.5



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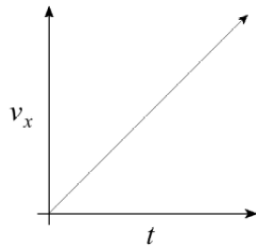
Which of the following statements is **incorrect** regarding friction?

- A) Kinetic friction is higher than static friction because moving objects experience greater resistance.
- B) Frictional force depends on the nature of the surfaces in contact.
- C) Frictional force is directly proportional to the normal force.
- D) Friction decrease after motion starts

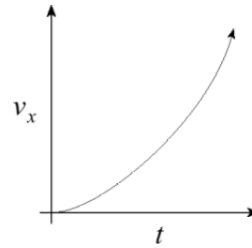
Q12. Explain the motion of horizontally launched projectiles, and show schematically the components of velocity and acceleration throughout the motion, with demonstrating that the vertical and horizontal motions of a projectile are independent

Which of the following graphs represents the horizontal velocity component (v_x) versus time for a projectile thrown horizontally off a cliff? (Ignore air resistance.)

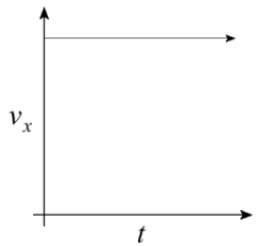
A.



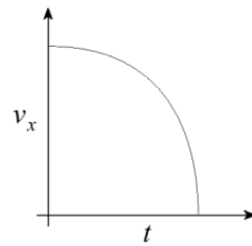
B.



C.

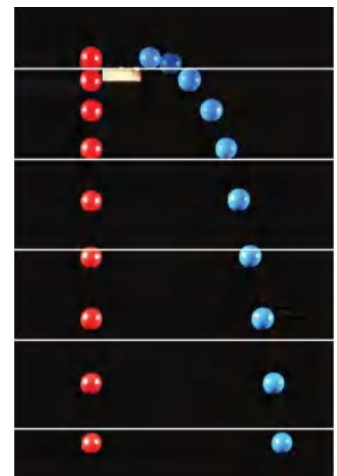


D.



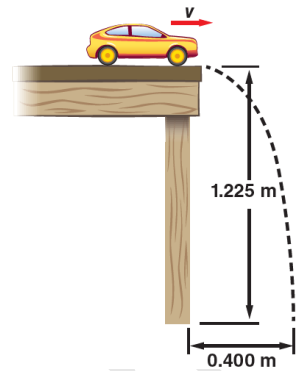
Which of the following statements is **true** about the motion of the two balls?

- A) The Blue ball falls slower than the red ball
- B) Both balls experience the same vertical acceleration
- C) The blue ball will hit the ground later than the red ball
- D) The Blue ball will have a greater vertical velocity than the red ball



The toy car in runs off the edge of a table that is **1.225 m** high.

The car lands **0.400 m** from the base of the table.



a. How long did it take the car to fall? (Take $g=9.8 \text{ m/s}^2$)

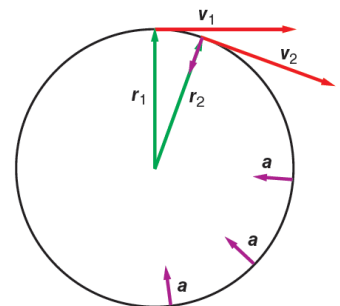
- A) 0.25 s
- B) 0.50 s
- C) 0.75 s
- D) 1.00 s

b. How fast was the car moving on the table?

- A) 0.40 m/s
- B) 0.53 m/s
- C) 0.67 m/s
- D) 0.80 m/s

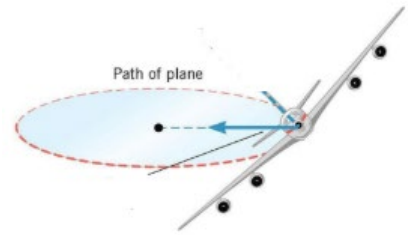
Which of the following is **true** for an object in **uniform circular motion**?

- A) The velocity vector is always perpendicular to the circular path.
- B) The velocity vector is always tangent to the circular path.
- C) The velocity vector points radially outward.
- D) The velocity vector is constant in both magnitude and direction



An airplane traveling at **201 m/s** makes a turn.

What is the smallest radius of the circular path
(**in kilometers**) the pilot can make and keep
the centripetal acceleration under **5.0 m/s²**?



- A- 42 Km
- B- 1.0 Km
- C- 8.1 Km
- D- 4.2 Km

A car racing on a flat track travels at **22 m/s** around a curve with a **56-m** radius. Find the car's centripetal acceleration. **What minimum coefficient of static friction** between the tires and the road is necessary for the car to round the curve without slipping?



- A- 0.24
- B- 0.88
- C- 0.39
- D- 0.75

الأسئلة المقالية

Q1.

a. Define one of the following

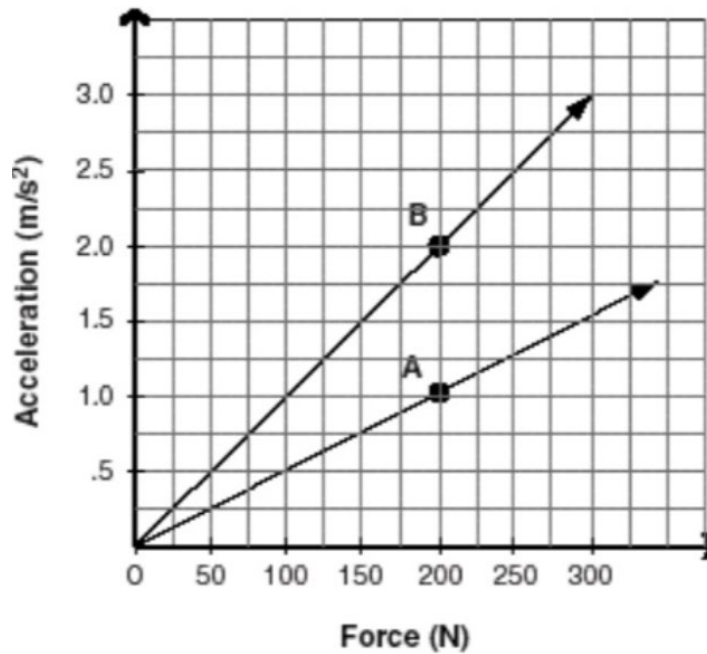
A push or a pull	Force
The vector sum of two or more forces acting on an object	Net Force
The net force on an object is zero.	Equilibrium
An object that is at rest will remain at rest, and an object that is moving will continue to move in a straight line with constant speed, if and only if the net force acting on the object is zero	Newton's First Law
The acceleration of an object is directly proportional to the net force on it and inversely proportional to its mass	Newton's Second Law
The two forces in an interaction pair act on different objects and are equal in magnitude and opposite in direction.	Newton's Third Law
Two forces that are in opposite directions, have equal magnitudes, and act on different objects	Interaction Pair
A force that acts on an object by touching	Contact Force
A force exerted by any segment of a rope or string	Tension

b. Complete the table with these words [contact force - field force - not a force]

Example	Type of Force
a. Mass
b. Inertia
c. The push of a hand
d. Friction
e. Air resistance
f. Spring force
g. Gravity
h. Acceleration

Q2

Part A:



Find the mass of object A

.....

.....

Find the mass of object B

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.....

If the mass of object B is doubled the slope of its curve will (increase – decrease – stay the same)

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Part B:

Two horizontal forces are exerted on a large crate. The first force is **317 N** to the **right**.

The second force is **173 N** to the **left**.



a. Draw a force diagram for the horizontal forces acting on the crate

b. What is the net force acting on the crate?

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c. The box is initially at rest. Five seconds later, its velocity is 6.5 m/s to the right.

What is the crate's mass?

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Q3.

After picking up school supplies, you and your caregiver walk from the door of the mall to the car. You first walk **250.0 m** down a lane of cars, and then **turn 90°** to the right and walk an additional **60.0 m**. How far is the car from the door to the mall?

Draw vectors to show the pathway you moved including the resultant displacement

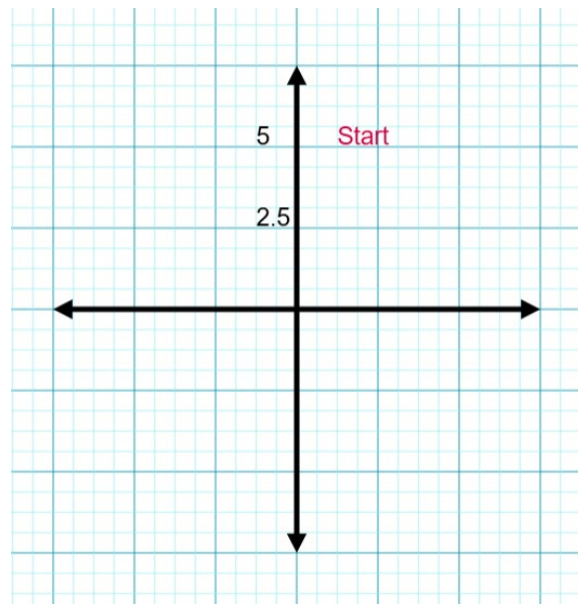
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Calculate the magnitude of resultant displacement

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An ant crawls on the sidewalk. It first moves south a distance of **5.0 cm**. It then turns southwest and crawls **4.0 cm**.

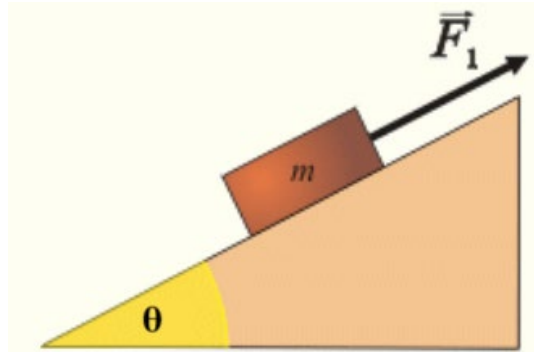


What is the magnitude of the ant's displacement?

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Q4. A **20 Kg** box is pulled upward over a frictionless inclined plane as shown with a force of **120 N**



a. Draw on the box vectors that represent all the forces and label them

b. Find the resultant force

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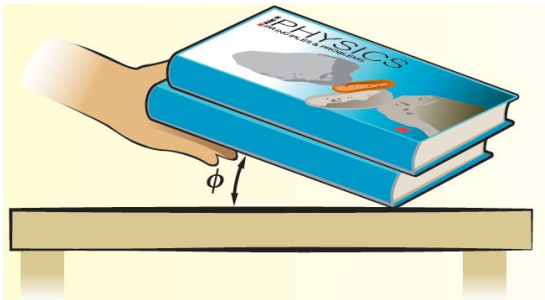
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c. Find the acceleration

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You stack two physics books on top of each other as shown. You tilt the bottom book until the top book just begins to slide. You perform five trials and measure the angles given in the following table.



Trial	ϕ
1	21°
2	17°
3	21°
4	18°
5	19°

a. What is the average ϕ measured during the five trials?

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b. What is the coefficient of static friction between the covers of the two books?

Use the average ϕ found in part a.

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c. You measure the top book's acceleration down the incline to be 1.3 m/s^2 . What is the coefficient of kinetic friction? Assume ϕ is the average value found in part a.

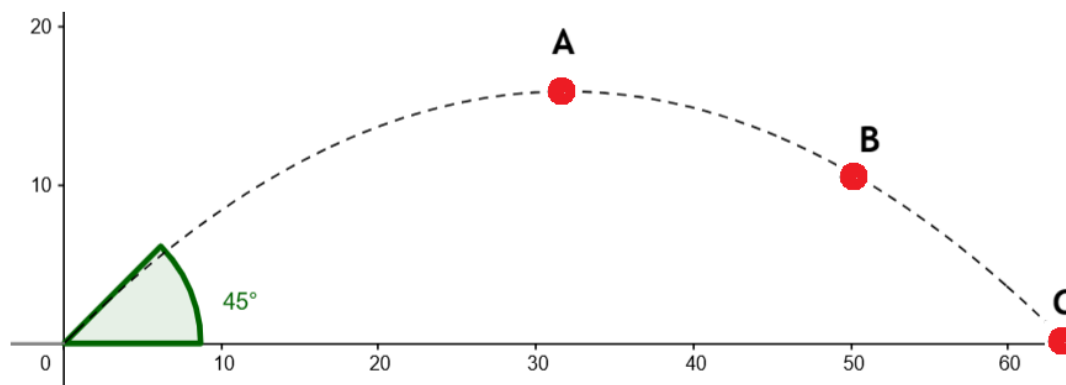
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Q5. Part A: A ball is launched at 4.5 m/s at 45° from horizontal



a. Find the vertical component of initial velocity V_y

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b. Find the vertical component of initial velocity V_y

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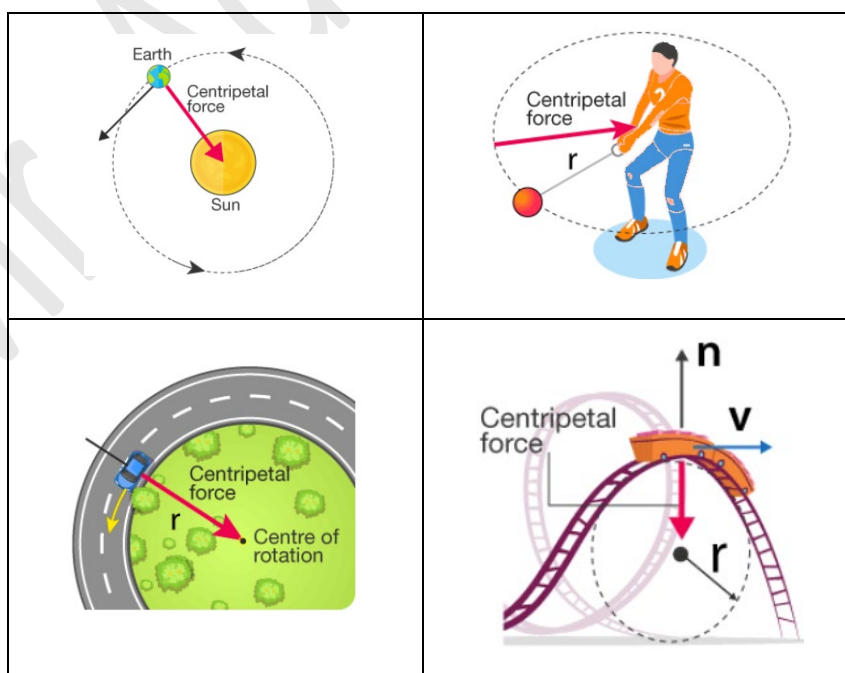
c. Draw the V_x and V_y vectors at the three points **A**, **B** and **C**

d. What is the value of vertical and horizontal acceleration

vertical acceleration	horizontal acceleration

Part B:

Force Type	Example of Circular Motion	How It Acts as Centripetal Force
Tension (T)	A ball tied to a string and swung in a circle	The string pulls the ball toward the center .
Gravity (F_g)	Planets orbiting the Sun	The Sun's gravitational pull keeps planets in orbit.
Electric Force (F_e)	Electrons orbiting the nucleus	The nucleus' positive charge attracts the electrons.
Friction (F_f)	A car turning on a curved road	Static friction between tires and road prevents skidding.
Normal Force (F_N)	A roller coaster looping a vertical loop	The track's normal force pushes the coaster toward the center.



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