

حل مراجعة نهائية وفق الهيكل الوزاري الجديد منهج انسابير



تم تحميل هذا الملف من موقع المناهج الإماراتية

موقع المناهج ← المناهج الإماراتية ← الصف العاشر العام ← فيزياء ← الفصل الأول ← ملفات متنوعة ← الملف

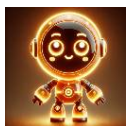
تاريخ إضافة الملف على موقع المناهج: 08:02:09 2025-11-07

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 العاشر العام



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف العاشر العام والمادة فيزياء في الفصل الأول

مراجعة نهائية وفق الهيكل الوزاري الجديد منهج انسابير

1

تجميعية أسئلة وفق الهيكل الوزاري الجديد منهج انسابير

2

تجميعية أسئلة القسم الكتابي وفق الهيكل الوزاري الجديد منهج انسابير

3

مذكرة شاملة الوحدة الأولى مع تدريبات

4

ملخص وتدريبات الدرس الأول motion and Force منهج انسابير

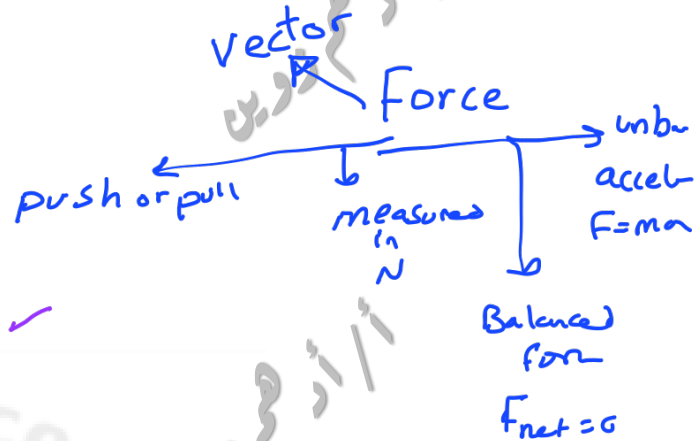
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Grade 10 Gen EOT-1 Revision

مراجعة هيكل العلوم العاشر عام الفصل الاول 2026

Which of the following is **NOT** true about force?

- A) Force is a push or pull ✓
- B) Force is a scalar quantity. (circled)
- C) Force can cause an object to accelerate $F = ma$ ✓
- D) Force is measured in Newtons (N). ✓



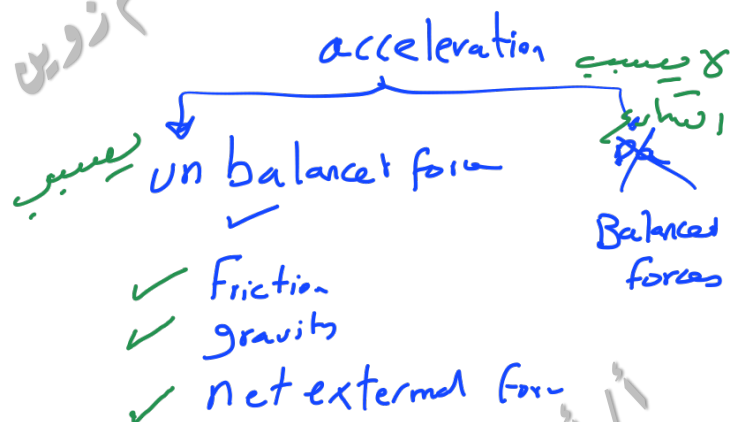
Which of the following best defines a **force**?

- A. A push or pull that acts only when two objects are in contact. x
- B. A push or pull that can change an object's motion or shape. ✓
- C. The amount of matter in an object. x mass
- D. The rate at which velocity changes over time. x acceleration



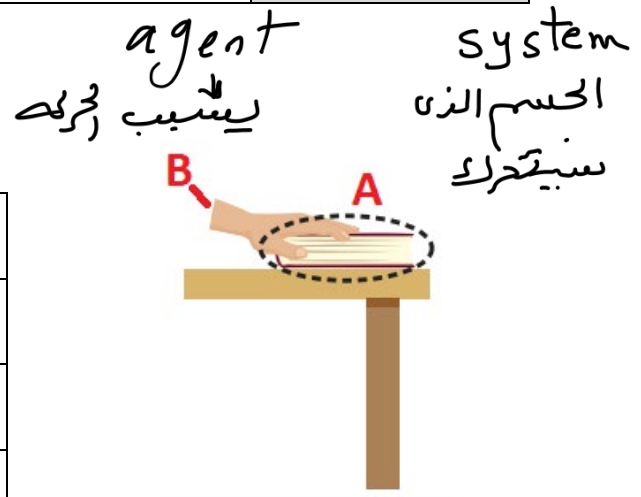
Which of the following is **NOT** a cause of acceleration?

- A) A net external force
- B) Gravity
- C) Balanced forces
- D) Friction



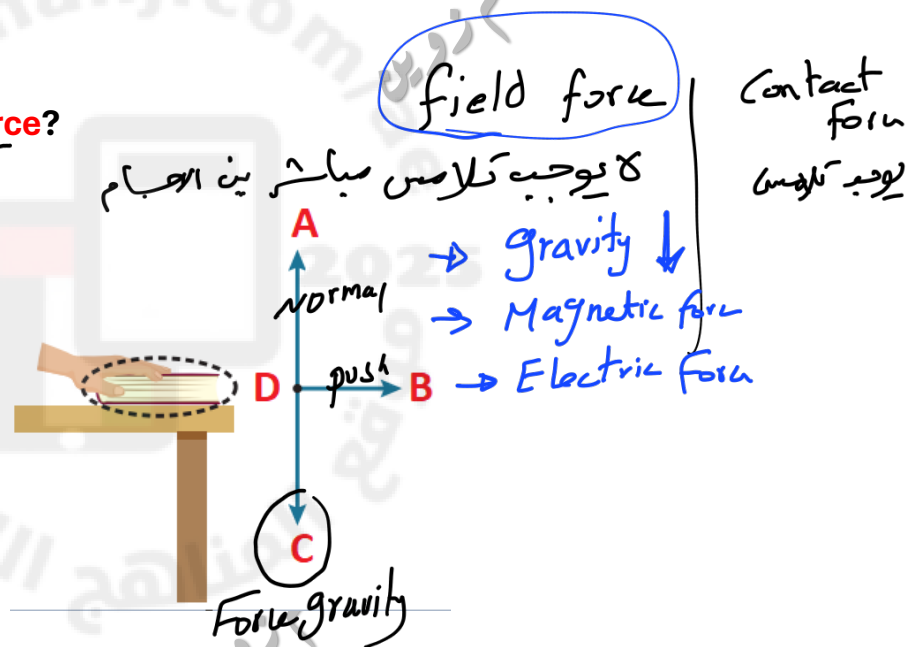
Which of the following is **True**?

A	A is agent	B is system
<u>B</u>	A is system	B is <u>agent</u>
C	A is system	B is system
D	A is agent	B is <u>agent</u>



Which of the following is **Field force**?

A
B
<u>C</u>
D



the following is an example of a **field force**?

- A) Friction
- B) Normal force
- C) Gravitational force
- D) Tension

$$\frac{F}{m} = a$$

$$\frac{F}{a} = m$$

$$\frac{a}{F} = \frac{1}{m}$$

G10 Gen

Science - Inspire

العلوم - انسيبر

T1 - 2025 - 2026

From the following curve, what is the **mass** of the object?

A- 2.06 Kg

B- 0.94 Kg

C- 1.06 Kg

D- 10 Kg

$$\text{slope} = \frac{7.5 - 0}{8 - 0}$$

$$= \frac{7.5}{8} = 0.94$$



$$\frac{a}{F} =$$

$$\text{mass} = \frac{1}{0.94}$$

Which of the following is the correct formula for **Newton's Second Law of Motion**?

A) $F_{\text{net}} = mv$

B) $F_{\text{net}} = ma$

C) $F_{\text{net}} = m/a$

D) $F_{\text{net}} = v/m$

If the total mass of sled and the two boxes is **20 Kg**, Find the **acceleration**



A) 80 m/s²

B) 20 m/s²

C) 4 m/s²

D) 40 m/s²

$$\begin{aligned} F_{\text{net}} &= F_1 + F_2 \\ &= 40 + 40 \\ &= 80 \end{aligned}$$

$$a = \frac{F_{\text{net}}}{m} = \frac{80}{20} = 40 \text{ m/s}^2$$

What is another name for **Newton's First Law of Motion**?

- A) Law of Acceleration
- B) Law of Momentum
- C) Law of Inertia
- D) Law of Force

↓
Law of inertia.

What happens to an object in motion if the **net force** acting on it is **zero**?

- A) It will stop immediately. ~~x~~
- B) It will continue moving in a straight line with constant speed. ✓
- C) It will gradually slow down.
- D) It will change direction

Balanced Forces

object will not move

it will move with constant speed

Which of the following best defines **equilibrium**?

- A. A state in which an object is moving at a constant speed in a straight line. ✓
- B. A state in which all forces acting on an object are balanced, no change in motion. ✓
- C. A state in which an object accelerates due to unbalanced forces. ✗
- D. A state in which gravity is the only force acting on an object. ✗

Which of the following objects is **not in equilibrium**?

أي من الأجسام التالية ليس في حالة اتزان؟

- a. A book at rest on a table كتاب في حالة السكون على طاولة ✓
- b. c. A parachute falling with terminal velocity مظلة تسقط بالسرعة الحدية ✓
- c. d. A train moving with a constant velocity قطار يتحرك بسرعة ثابتة ✓
- d. A car moving in a constant acceleration سيارة تتحرك بتسارع ثابت

Which of the following diagrams is in **equilibrium**?

A		B	
C		D	

According to **Newton's First Law**, when is an object in equilibrium?

$$F_{net} = 0$$

- A) When it is accelerating ☒
- B) When the net force acting on it is zero ☒
- C) When it is moving in a circular path ☒
- D) When multiple forces act on it in different directions ☒

Which of the following is **true** about an object in equilibrium?

- A) It must always be at rest.
- B) When multiple forces act on it in different directions
- C) It must always experience multiple forces.
- D) It can be moving, but only if its velocity is constant. ☒

Which of the following is **NOT** true about an object's weight?

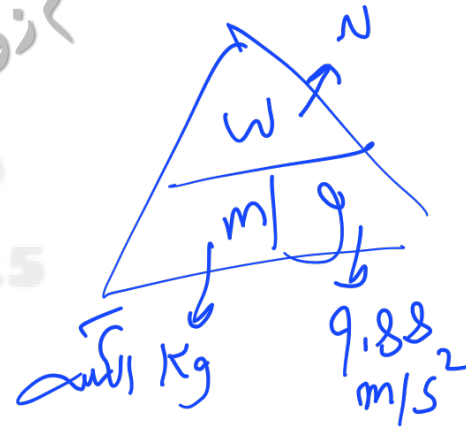
- A) Weight is the force exerted on an object due to gravity.
- B) An object's weight can change depending on its location in the universe.
- C) Weight is a measure of an object's mass. **X**
- D) it is given by $W = mg$ where g is the gravitational acceleration

You place a **4.0-kg** watermelon on a spring scale that measures in newtons. **What is the scale's reading?** (The scale reads the weight of the watermelon)

- A) 4.0 N
- B) 39 N
- C) 9.8 N
- D) 38 N

$$W = mg$$

$$= 4.0 \times 9.88$$



You place a **22.50-kg** television on a spring scale. If the scale reads **235.2 N**, **what is the gravitational field?** g

- A) 9.8 N/kg
- B) 10.5 N/kg
- C) 11.5 N/kg
- D) 9.5 N/kg



$$m = 22.50 \text{ Kg}$$

$$W = 235.2 \text{ N}$$

$$g = \frac{W}{m}$$

$$= \frac{235.2}{22.50}$$



Which of the following statements correctly describes **forces in nature**?

- A. Forces act on a single object independently of other objects.
- ☒ B. Forces are interactions between two bodies, and one body cannot exert a force without affecting the other. ✓
- C. Forces exist only when objects are touching each other.
- D. Forces are only caused by gravity.

Newton's third law of motion states that:

*action = reaction
force pair*

- A. An object at rest stays at rest unless acted upon by a force.
- B. The acceleration of an object is directly proportional to the net force and inversely proportional to its mass.
- ☒ C. For every action, there is an equal and opposite reaction; forces always come in pairs.
- D. Objects in motion will eventually stop unless a force keeps them moving.

Which of the following is the **correct** mathematical representation of **Newton's Third Law**?

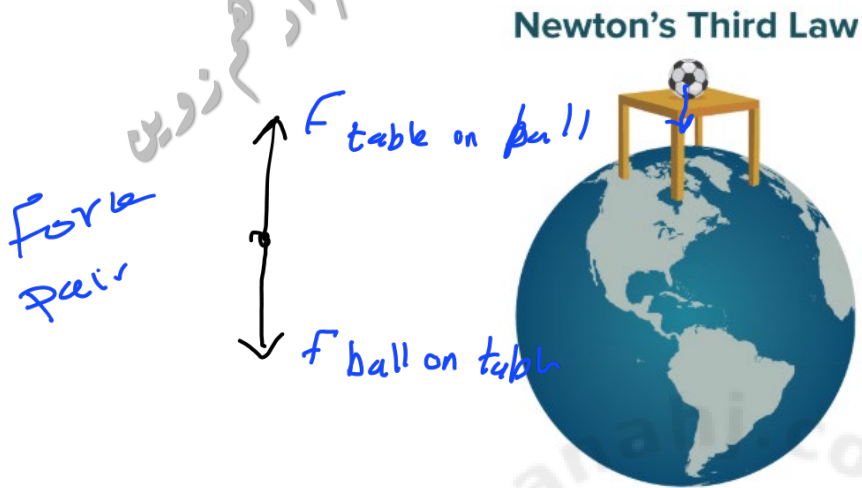
- a) $F = m \times a$ *2nd*
- ☒ b) $F_1 = -F_2$ *3rd*
- c) $\Sigma F = 0$ *1st*
- d) $P = F \times v$

Which of the following statements **correctly** describes **action-reaction force pairs**?

*equal in magnitude
opposite
different object*

- A. They act on the same object and cancel each other out. *X*
- ☒ B. They act on different objects, are equal in magnitude, and opposite in direction. ✓
- C. They act in the same direction on different objects. *X*
- D. They only exist when one object is at rest. *X*

Which of the following is a **force pair**?



A		B	
C		D	

you push against a wall, the wall pushes back against you with ____ force.

A) equal

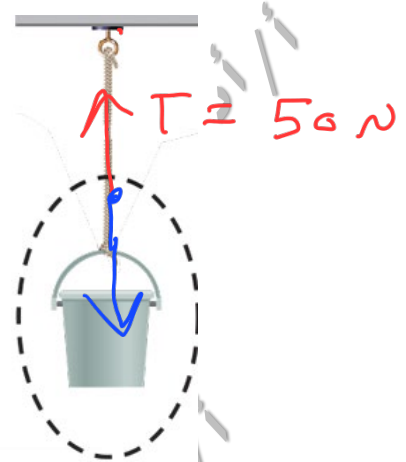
B) less

C) no

D) more

A box is pulled by a rope with a tension of **50 N**. According to Newton's Third Law, what force does the box exert on the rope?

- A. 0 N, because the rope only pulls the box.
 B. 25 N, half of the tension.
 C. 50 N in the same direction as the tension.
 D. 50 N in the opposite direction to the tension



Which of the following correctly distinguishes between **static** and **kinetic** friction?

- A) Static friction acts when an object is moving, while kinetic friction acts when it is at rest.
 B) Static friction prevents motion, while kinetic friction opposes motion once it has started.
 C) Static friction is always less than kinetic friction.
 D) Kinetic friction increases until the object starts moving.

The force of **friction** between two surfaces mainly depends on which of the following factors?

- A) The speed of motion and surface temperature
 B) The volume and shape of the object
 C) The color and mass of the object
 D) The roughness of surfaces and the normal force between them

خشونة السطح

القوة العمودية

$$F_f = \mu F_N$$

↓
coefficient of friction

Normal force

Which of the following is **true** about the coefficients of kinetic and static friction?

- A) The coefficient of kinetic friction is always greater than that of static friction.
- B) The coefficient of static friction is usually greater than the coefficient of kinetic friction.**
- C) Both coefficients are always equal for any two surfaces.
- D) The coefficients depend on the weight of the object, not the nature of the surfaces.

Which of the following best defines the coefficients of kinetic and static friction?

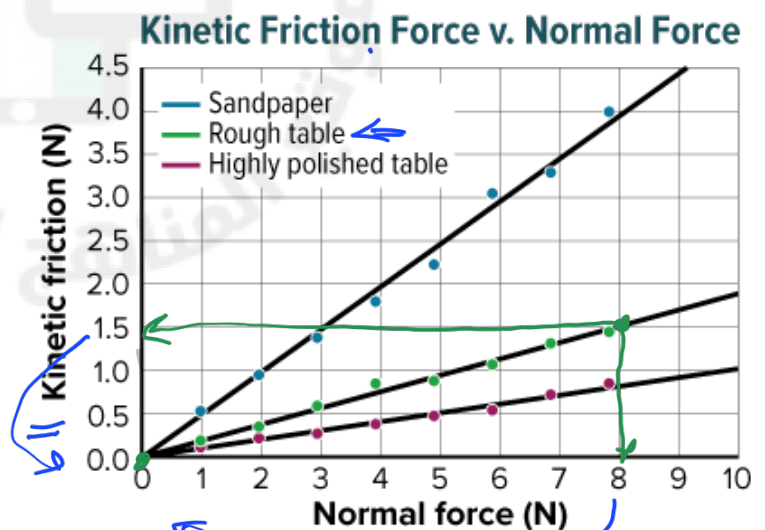
- A) They are the forces that cause motion between two objects.
- B) They are the weights of the objects involved in motion
- C) They are ratios that compare the frictional force to the normal force between two surfaces.**
- D) They are the speeds at which objects start to move.

$$\frac{F_f}{F_N} = \mu$$

The **coefficient** of kinetic friction of
Of rough table is

- A) 0.500
- B) 0.187**
- C) 0.100
- D) 1.550

$$\frac{1.5 - 0}{8 - 0} = 0.187$$



$$F_{f, \text{kinetic}} = \mu_k F_N$$

work $\Rightarrow$ J N.m

Which of the following is **true** about work?

A) Work is a vector quantity measured in joules (J).

B) Work is a scalar quantity measured in newton-meters (Nm) or joules (J).

C) Work is only done when an object is at rest.

D) Work is measured in kilograms (kg).

الجسم لابد ان يتحرك
عن سبب فعل

Together two students push a car with a force of **825 N** over a distance of **35 m**. How much work do they do on the car?

A) 2887.5 J

B) 28875 J

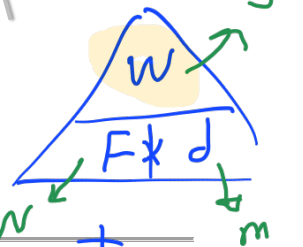
C) 8600 J

D) 35000 J

$$W = Fd = 825 \times 35 =$$

$$F = 825 \text{ N}$$

$$d = 35 \text{ m}$$



An electric motor develops **65 kW** of power as it lifts a loaded elevator **17.5 m** in **35 s**. What force does the motor exert?

A) 1300 N

B) 13000 N

C) 130000 N

D) 65000 N

$$Pt = fd$$

$$1.3 \times 10^5$$

$$F = \frac{Pt}{d} = \frac{(65 \times 1000)(35)}{17.5} = 130000 \text{ N}$$

When a force acts perpendicular to the direction of an object's motion, the work done by the force is:

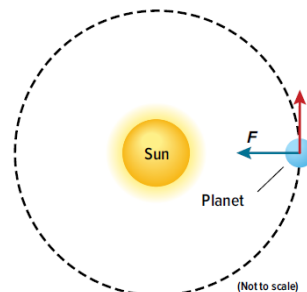
$$F \perp d$$

A) Maximum positive

B) Maximum negative

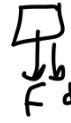
C) Zero

D) Equal to the kinetic energy



Which of the following is an example of **negative work**?

- A) Pushing a sled forward on ice $\Rightarrow +$
 B) Gravity pulling a falling ball downward $+$
 C) Friction slowing down a sliding book
 D) Pulling a cart forward



Friction $\rightarrow$
 Work $\Rightarrow$ negative

Which of the following correctly defines **power** and its **unit**?

- A) Power is the total energy of an object, measured in joules (J).
 B) Power is the rate at which work is done, measured in watts (W).
 C) Power is the force applied on an object, measured in newtons (N).
 D) Power is the speed of an object, measured in meters per second (m/s).

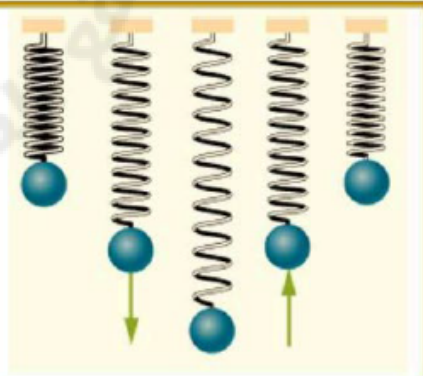
Any motion that repeats in a regular cycle is known as motion.

- A) wave
 B) periodic
 C) transverse
 D) accelerated motion

The figure shows a mass attached to a spring. If the mass is pulled down and released, it will bounce up and down through the equilibrium position.

Which of the following **types of motion** represents this situation?

يُبين الشكل كتلة متصلة بزنبرك، سُحبت الكتلة إلى أسفل وتُركت، فإِذَا سَارت صَعُوداً وَهَبُوطاً حَولَ مَوْضِعِ الاتِّزان. أي أنواع الحركة الأتية تُمَثِّل هذه الوضعية؟



SHM

a) Periodic motion	(أ) الحركة الدورية
<u>(b) Simple harmonic motion</u>	(ب) الحركة التوافقية البسيطة
c) Linear Motion	(ج) الحركة الخطية
d) Translational motion	(د) الحركة الانتقالية

2. What does the **period (T)** of a periodic motion represent?

- A. The total distance traveled in one cycle
- B. The time taken for half a cycle
- C. The maximum speed reached
- D. The time needed to complete one full cycle

ماذا يُمثل الزمن الدوري (T) للحركة الدورية؟

- أ. المسافة الكلية المقطوعة في دورة واحدة
- ب. الزمن المستغرق لنصف دورة
- ج. أقصى سرعة وصلت إليها
- د. الزمن اللازم لإكمال دورة كاملة

What is the **amplitude** of a periodic motion?

- A. The average speed of the object
- B. The number of cycles per second
- C. The maximum distance from the equilibrium position
- D. The net force at equilibrium

ما سعة الحركة الدورية؟

- أ. متوسط سرعة الجسم
- ب. عدد الدورات في الثانية
- ج. أقصى مسافة من موضع التوازن
- د. القوة المحصلة عند التوازن

Which of the following statements **correctly describe** simple harmonic motion (SHM)?

- I. SHM is a type of periodic motion where the restoring force is proportional to displacement.
- II. SHM occurs only if the motion repeats at regular intervals, regardless of the type of restoring force.
- III. A stretched spring with a mass undergoing vertical oscillations can exhibit SHM.

- A) I and II only
- B) I and III only
- C) II and III only
- D) I, II, and III

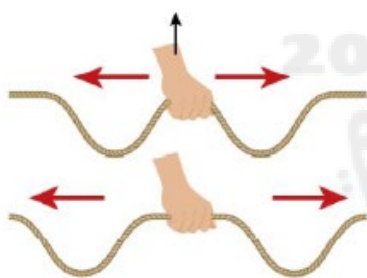
بشكل صحيح؟ (SHM) أي من العبارات التالية تصف الحركة التوافقية البسيطة

الحركة التوافقية البسيطة هي نوع من الحركة الدورية، حيث تتناسب قوة الاستعادة طردياً مع الإزاحة تحدث الحركة التوافقية البسيطة فقط إذا تكررت الحركة على فترات منتظمة، بغض النظر عن نوع قوة الاستعادة يمكن لزنبرك مشدود ذي كتلة تخضع لتذبذبات رأسية أن يظهر حركة توافقية بسيطة.

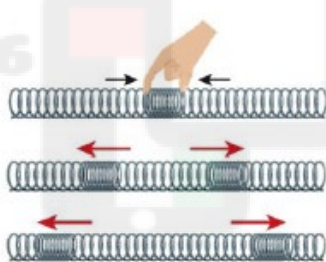
- A) I and II only
- B) I and III only
- C) II and III only
- D) I, II, and III

Types of Mechanical Waves

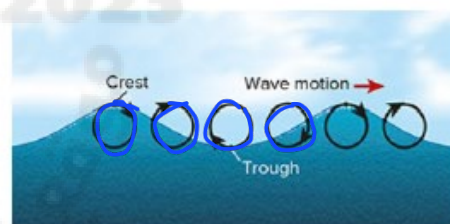
Feature	Transverse Wave ①	Longitudinal Wave ②	Surface Wave
Particle Motion	Perpendicular to wave direction (up/down) 	Parallel to wave direction (back/forth) 	Circular (both perpendicular and parallel)
Wave Direction	Horizontal (while rope moves vertically)	Same as particle direction	Along surface (e.g., water surface)
Example	Rope waves, light (non-mechanical) 	Sound waves, spring toy 	Ocean waves near the shore
Key Terms	Crest, Trough 	Compression, Rarefaction 	Circular motion (combines both types)
Wave Medium	Solids, strings	Gases (air), liquids, solids	Liquids (like water surface) ✓
Medium	No need, vacuum	Need	Need



Transverse



longitudinal



Surface

Which of the following correctly relates the **period (T)** of a wave to its **frequency (f)**?

A) $T = f$

B) $T = 1/f$

C) $T = f^2$

D) $T = f/2$

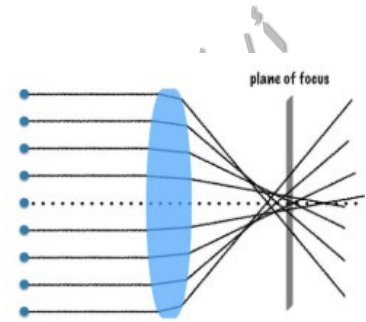
B

$$f = \frac{1}{T}$$

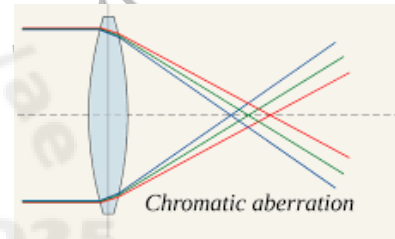
$$T = \frac{1}{f}$$

1What is spherical aberration in a lens?

- A) When light of different colors focuses at different points
- B) When light rays parallel to the principal axis do not converge at a single point
- C) When the lens absorbs some colors of light
- D) When the lens breaks under stress

**What is chromatic aberration in a lens?**

- A) A defect causing light rays of different colors to focus at different points
- B) A defect caused by dirt on the lens
- C) Unequal bending of all light rays at the same wavelength
- D) Reflection of light from the lens surface

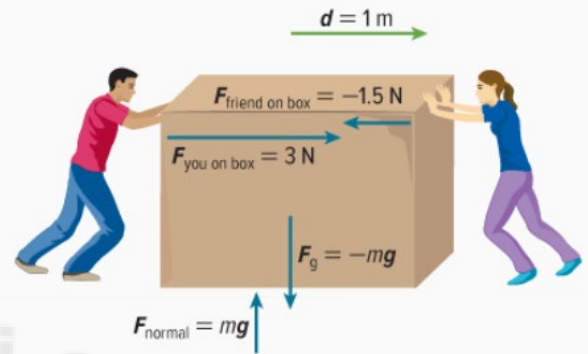
**How can the chromatic and spherical aberrations be minimized in optical instruments?**

- A) By using mirrors instead of lenses
- B) By using colored filters only
- C) By increasing lens thickness
- D) By ignoring parallel light rays

Written part

The force you exert (3N) is in the direction of the displacement and Your friend exerts a force (1.5 N) in the direction opposite the displacement the box moved 1 m to the right

القوة التي تؤثر بها (3 نيوتن) في اتجاه الإزاحة، ويؤثر صديقك بقوة (1.5 نيوتن) في الاتجاه المعاكس للإزاحة تحرك الصندوق مسافة 1 م إلى اليمين



Find the work done by you اوجد الشغل المبذول عن طريقك

.....

.....

Find the work done by your friend اوجد الشغل المبذول عن طريق صديقك

.....

.....

Find the net work done اوجد محصله الشغل المبذول

.....

.....

A **12-kg** box is on a horizontal frictionless surface. Two students push the box simultaneously: one applies a force of **50 N** to the right, and the other applies a force of **30 N** to the left.



1. Draw a diagram showing all the forces acting on the box.
2. Calculate the **net force** acting on the box.

.....

.....

.....

3. Determine the **acceleration** of the box.

.....

.....

.....

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4. State the **direction of the acceleration**.

.....

.....

5. If a frictional force of 10 N opposes the motion, recalculate the **net force** and **acceleration**.

.....

.....

1. Diagram

- Draw a horizontal box.
- Arrow right: 50 N
- Arrow left: 30 N
- (Optional later) Friction: 10 N left

2. Net Force (without friction)

For forces in opposite directions:

$$F_{\text{net}} = F_{\text{right}} - F_{\text{left}} = 50 - 30 = 20 \text{ N (right)}$$

3. Acceleration (without friction)

$$a = \frac{F_{\text{net}}}{m} = \frac{20}{12} \approx 1.67 \text{ m/s}^2 \text{ (right)}$$

4. Direction of Acceleration

- Acceleration is **toward the right** (same as net force direction).

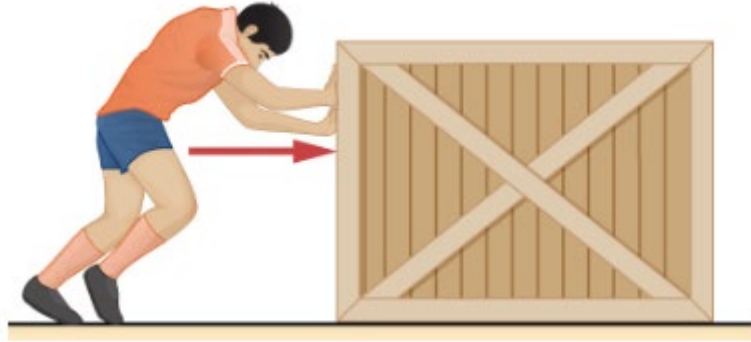
5. Net Force and Acceleration with Friction

Friction opposes motion, so total opposing force = 30 N + 10 N = 40 N

$$F_{\text{net}} = F_{\text{right}} - (F_{\text{left}} + \text{friction}) = 50 - 40 = 10 \text{ N (right)}$$

$$a = \frac{F_{\text{net}}}{m} = \frac{10}{12} \approx 0.83 \text{ m/s}^2 \text{ (right)}$$

A **20-kg** crate rests on a horizontal floor. The coefficient of static friction between the crate and the floor is **0.4**, and the coefficient of kinetic friction is **0.3**.



1. Calculate the **maximum static friction force** that prevents the crate from moving.

.....

.....

.....

2. A worker applies a horizontal force of 60 N. Will the crate move? Justify your answer.

.....

.....

.....

3. If the crate starts moving, calculate the **kinetic friction force** acting on it.

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4. Determine the **acceleration** of the crate when the 60 N force is applied and it starts moving.

1. Maximum Static Friction

$$f_s^{\max} = \mu_s \cdot N$$

Normal force on horizontal surface:

$$N = m \cdot g = 20 \cdot 9.8 = 196 \text{ N}$$

$$f_s^{\max} = 0.4 \cdot 196 = 78.4 \text{ N}$$

✓ Answer: 78.4 N

2. Will the crate move?

- Applied force = 60 N
- Maximum static friction = 78.4 N

Since $F_{\text{applied}} < f_s^{\max}$, the crate will not move.

✓ Answer: No, because 60 N < 78.4 N.

3. Kinetic Friction Force

If the crate starts moving, the kinetic friction force is:

$$f_k = \mu_k \cdot N = 0.3 \cdot 196 = 58.8 \text{ N}$$

✓ Answer: 58.8 N

4. Acceleration Once Moving

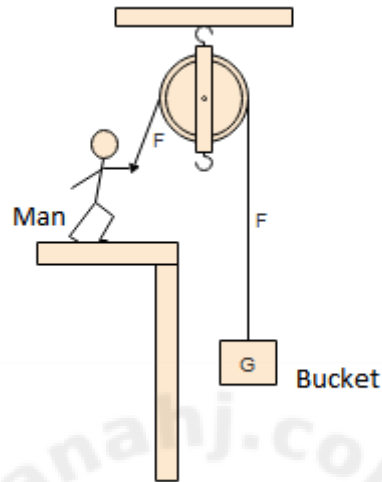
Net force after the crate moves:

$$F_{\text{net}} = F_{\text{applied}} - f_k = 60 - 58.8 = 1.2 \text{ N}$$

Acceleration:

$$a = \frac{F_{\text{net}}}{m} = \frac{1.2}{20} = 0.06 \text{ m/s}^2$$

A person lifts a **15-kg** bucket of water vertically from the ground to a height of **3 m** in **6 seconds**.



1. Draw a **free-body diagram** of the bucket (represented as a dot), showing all forces acting on it while lifting.
2. Calculate the **work done** by the person on the bucket.

3. Determine the **power** developed by the person while lifting the bucket.

4. If the person lifts the bucket at a **constant speed**, explain the relationship between the applied force and the weight of the bucket.

1. Free-Body Diagram

- Represent the bucket as a dot.
- Forces acting on the bucket:
 - Weight ($W = mg$) downward
 - Applied force (F) upward

SCSS

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↑ F (applied force)

- Bucket

↓ W (weight)

2. Work Done by the Person

For vertical lifting at constant speed, applied force equals weight:

$$F = W = m \cdot g = 15 \cdot 9.8 = 147 \text{ N}$$

Work done:

$$W = F \cdot d = 147 \cdot 3 = 441 \text{ J}$$

✓ Answer: 441 J

3. Power Developed

$$P = \frac{W}{t} = \frac{441}{6} = 73.5 \text{ W}$$

✓ Answer: 73.5 W

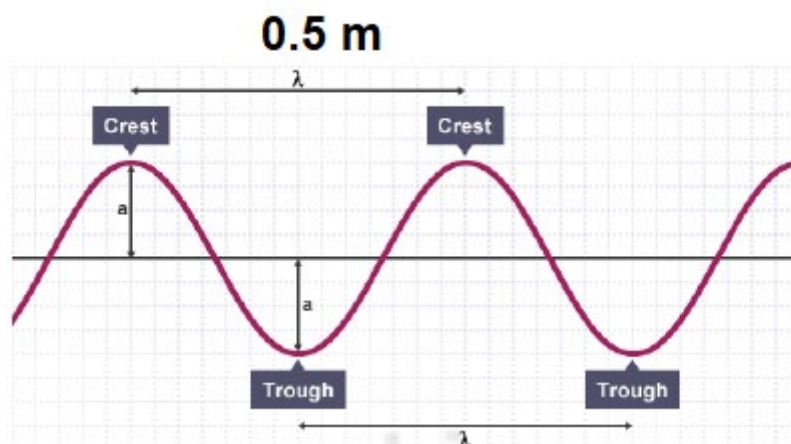
4. Relationship Between Applied Force and Weight

- When lifting at constant speed, acceleration $a = 0$.
- According to Newton's Second Law: $F_{\text{applied}} - W = m \cdot a = 0$

$$F_{\text{applied}} = W$$

✓ Answer: The applied force equals the weight of the bucket.

A wave travels along a string with a speed of **12 m/s**. The distance between two consecutive crests is **0.5 m**.



Questions:

1. Define **periodic motion** and explain the quantities associated with it:, **wavelength**, and **amplitude**.

period	
wavelength	
amplitude	

2. Calculate the **frequency** of the wave.

.....

.....

3. Calculate the **period** of the wave.

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If the amplitude of the wave is 0.2 m, put this value on the graph.

- **Period (T):** Time taken for one complete cycle of the motion.
- **Wavelength (λ):** Distance between two consecutive points in phase (e.g., crest to crest).
- **Amplitude (A):** Maximum displacement of the particle from its mean (equilibrium) position.

2. Frequency of the Wave

Wave equation:

$$v = f \cdot \lambda \implies f = \frac{v}{\lambda}$$

$$f = \frac{12}{0.5} = 24 \text{ Hz}$$

✓ Answer: $f = 24 \text{ Hz}$

3. Period of the Wave

$$T = \frac{1}{f} = \frac{1}{24} \approx 0.0417 \text{ s}$$