

اختبار الطاقة وحفظها



تم تحميل هذا الملف من موقع المناهج الإماراتية

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

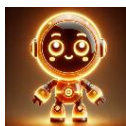
تاريخ إضافة الملف على موقع المناهج: 09:35:12 2026-09-20

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: عبدالرحمن عصام عيد

التواصل الاجتماعي بحسب الصف الثاني عشر المتقدم



صفحة المناهج
الإماراتية على
فيسبوك

الرياضيات

اللغة الانجليزية

اللغة العربية

التربية الاسلامية

المواد على تلغرام

المزيد من الملفات بحسب الصف الثاني عشر المتقدم والمادة فيزياء في الفصل الأول

ملزمة تجمع بين مخرجات التعلم ونمط الاختبار في هيكل متكامل،

1

الوحدة الأولى: القوى الكهروستاتيكية

2

نموذج اختبار تجريبي مطابق 2026

3

حل مراجعة شاملة وفق الهيكل الوزاري الجديد منهج انسابير

4

حل مراجعة شاملة وفق الهيكل الوزاري منهج انسابير

5



أينشتاين العرب
Einstein of the Arabs

مصدرك الأول

— للعلامة —

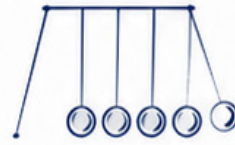
الكاملة

في الفيزياء

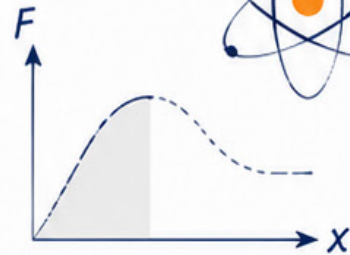


أينشتاين
العرب

أينشتاين العرب



$$E = mc^2$$



استاذ

عبدالرحمن عصام عيد



معك خطوة بخطوة
نحو التفوق والتميز

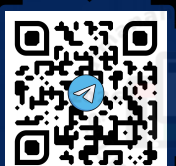


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Einsteinabdo

Einstein_AE



EXAM 1 Energy and Its Conservation

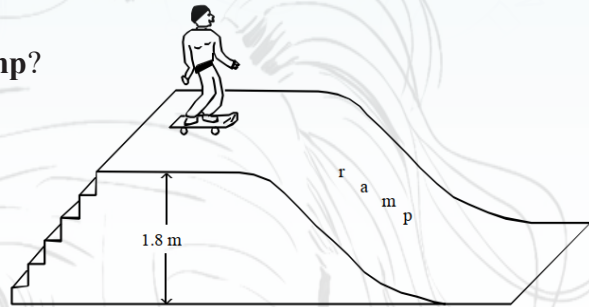
First Choose the correct answer

- 1 A child and his skateboard have a mass of **60 kg**. Starting from rest, he goes down a ramp whose **vertical drop is 1.8 m**.

What is the boy's speed at the bottom of the ramp?

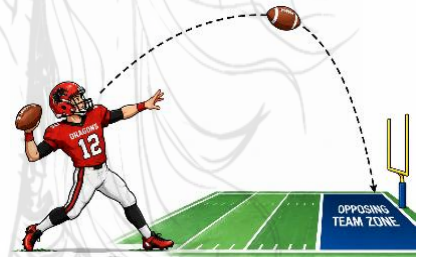
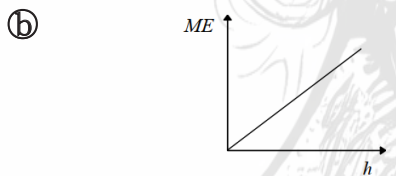
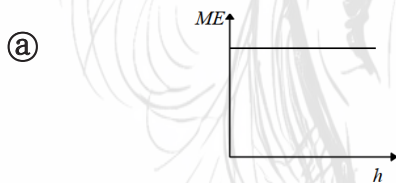
Disregard the effects of friction.

- (a) 9.0 m/s (b) 6.0 m/s
(c) 3.0 m/s (d) 2.0 m/s



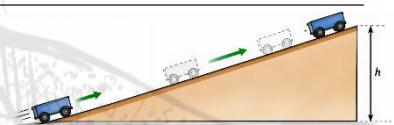
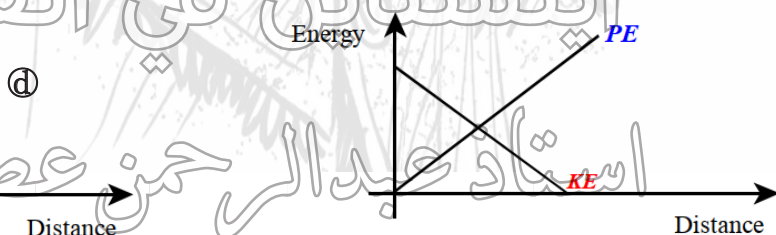
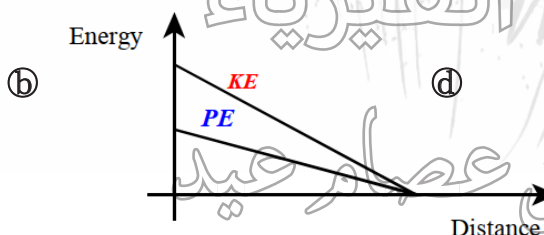
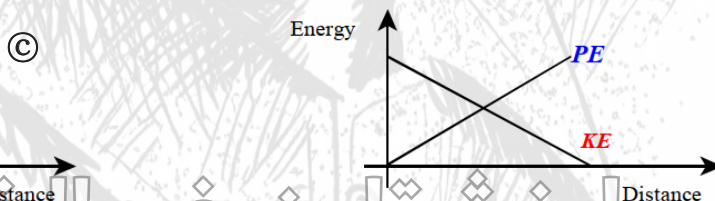
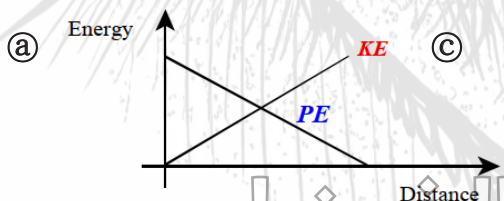
- 2 A football is kicked into the opposing team's zone by the *Dragons'* quarterback.

Which of these graphs shows the **total mechanical energy, ME** , of the football as a function of its **height, h** ? (Ignore the effects of air resistance.)



- 3 A cart is launched up a **frictionless inclined plane**.

Which of the following graphs best represents the **transformation of the different types of energy** involved in the **movement up the ramp**?



ملحوظة من اينشتاين انتبه في اختيار المعادلة الصحيحة لحساب work done

NOTES

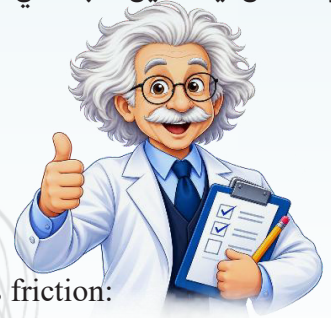
the **work done** relationships:

$$W_{\text{net}} = \Delta KE \rightarrow \text{Net work / total work} \rightarrow \text{think Kinetic Energy}$$

$$W_g = -\Delta PE \rightarrow \text{Work done by gravity} \rightarrow \text{think Potential Energy}$$

If the question asks for the **work done by non-conservative forces**, such as friction:

$$W_f = \Delta ME = \Delta KE + \Delta PE$$

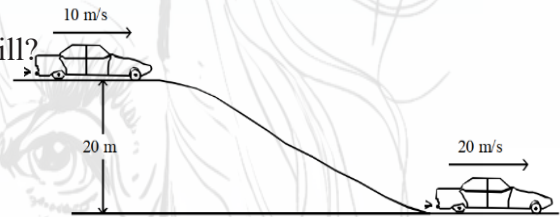


4

A car with a mass of **1,000 kg** arrives at the top of a hill **20 m high** at a speed of **10 m/s**. At the bottom of the hill, the speed of the car is **20 m/s**.

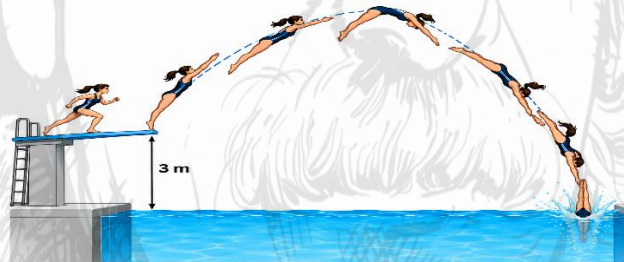
How much **work was done on the car** as it went downhill?

- (a) $1.0 \times 10^5 \text{ J}$ (c) $-2.0 \times 10^4 \text{ J}$
 (b) $1.5 \times 10^5 \text{ J}$ (d) $-4.6 \times 10^4 \text{ J}$



5

An Olympic diver runs along a **3 m high diving board**, jumps into the air, and dives into the pool below. The **56 kg diver** has a speed of **8.0 m/s** the moment she leaves the diving board.



At what point is her **gravitational potential energy at its maximum**?

6

At what point is her **kinetic energy at its maximum**?

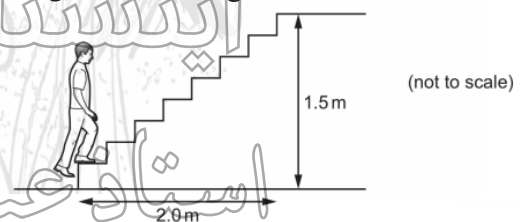
- (a) While she is running along the diving board (b) When she jumps into the air
 (c) Just before she hits the water (d) When she is under water

7

A student of mass **60 kg** climbs some steps. He travels a horizontal distance of **2.0 m** and a vertical distance of **1.5 m**. The gravitational field strength is $g = 9.81 \text{ N/kg}$.

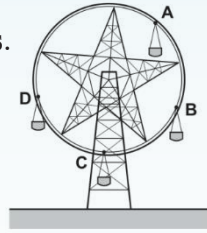
What is the **work done by the force of gravity**?

- (a) $+882.9 \text{ J}$ (b) -882.9 J
 (c) $+588.6 \text{ J}$ (d) -588.6 J



- 8 The diagram shows a **stationary fairground ride** with four chairs of **equal mass**. Which chair has the **most gravitational potential energy**?

(a) Chair A (b) Chair B
(c) Chair C (d) Chair D

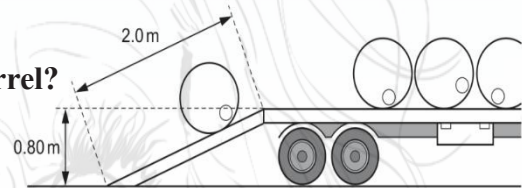


- 9 A workman rolls a barrel with a **mass of 200 kg** up a **2.0 m long plank** and onto a lorry. The back of the lorry is **0.80 m above the horizontal road surface**.

Hint: the **gravitational field strength** as $g = 9.81 \text{ N/kg}$.

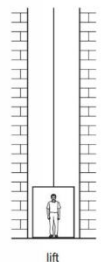
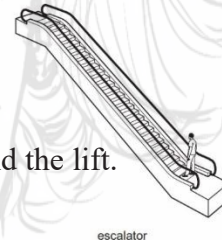
What is the **work done by the force of gravity on the barrel**?

(a) **+1569.6 J** (b) **-1569.6 J**
(c) **+1962 J** (d) **-1962 J**



- 10 A man can either take an **escalator** or a **lift** to travel up between two floors in a hotel. Which of the following correctly the **work done against gravity** in the two cases?

(a) The work done against gravity is greater when using the escalator.
(b) The work done against gravity is greater when using the lift.
(c) The work done against gravity is the same for both the escalator and the lift.
(d) No work is done against gravity when using the lift.



- 11 According to the **Work-Energy Theorem**, which of the following is **not correct**?
- (a) If the external world does work on a system, is **positive**, and the energy of the system **increases**.
(b) Work done on a system is equal to the **change in the system's energy**.
(c) If the external world does work on a system, is **negative**, and the energy of the system **decreases**.
(d) If a system does work on the external world, is **negative**, and the energy of the system **decreases**.

- 12 When an object **changes its shape**, energy can be stored within it. What is this stored energy called?

(a) **Elastic potential energy** (b) **Gravitational potential energy**
(c) **Kinetic energy** (d) **Thermal energy**

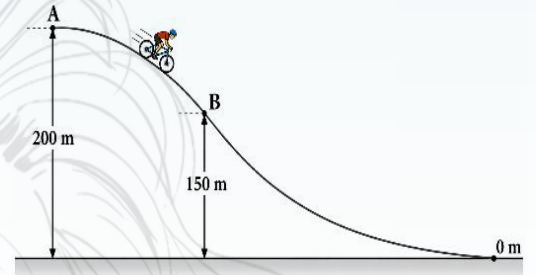
- 13 A ball is dropped from rest at point *a*, which is 20 m above point *b*. Point *b* is 5 m above the ground. Assume that air resistance is negligible.

1. Which expression correctly describes the kinetic energy of the ball at point *b* (KE_b) in terms of its gravitational potential energy at point *a* (GPE_a)?

- Ⓐ $KE_b = \frac{4}{3}(GPE_a)$ Ⓑ $KE_b = \frac{3}{4}(GPE_a)$
Ⓒ $KE_b = \frac{1}{4}(GPE_a)$ Ⓓ $KE_b = \frac{1}{2}(GPE_a)$

2. What is the speed of the ball at point *b*?

- Ⓐ 9.90 m/s Ⓑ 14.85 m/s
Ⓒ 17.15 m/s Ⓓ 19.81 m/s



- 14 A toy car has a mass of 500 g and moves at a speed of 36 km/h.

What is the kinetic energy of the toy car?

- Ⓐ 12.5 J Ⓑ 25 J
Ⓒ 324,000 J Ⓓ 100 J



- 15 A car moves from point A to point B. Its speed at point A is 120 km/h, while its speed at point B is 180 km/h.

Which of the following is the correct relationship between the kinetic energies at points A and B?

- Ⓐ $KE_B = \frac{4}{9}KE_A$ Ⓑ $KE_B = KE_A$
Ⓒ $KE_B = \frac{3}{2}KE_A$ Ⓓ $KE_B = \frac{9}{4}KE_A$



- 16 A figure skater spins while moving across the ice. Which types of kinetic energy does the skater have?

- Ⓐ Translational kinetic energy only
Ⓑ Rotational kinetic energy only
Ⓒ Both translational and rotational kinetic energies
Ⓓ Gravitational potential energy only



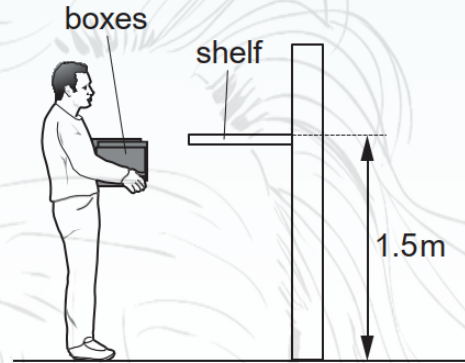
ايشتاين في الميزياء
استاذ عبدالرحمن عصام عيد

17

As shown in the figure, Mr. Abdelrahman raises a 20 kg box from the floor to a shelf 1.5 m above the ground. Hint $g = 9.8 \text{ N/kg}$.

What are the **work done by Mr. Abdelrahman (W)**, **work done by gravity (W_g)**, and the **change in gravitational potential energy (ΔPE)**?

	ΔPE	W	W_g
(a)	-294 J	-294 J	+294 J
(b)	+294 J	+294 J	-294 J
(c)	+294 J	-294 J	-294 J
(d)	-294 J	+294 J	+294 J

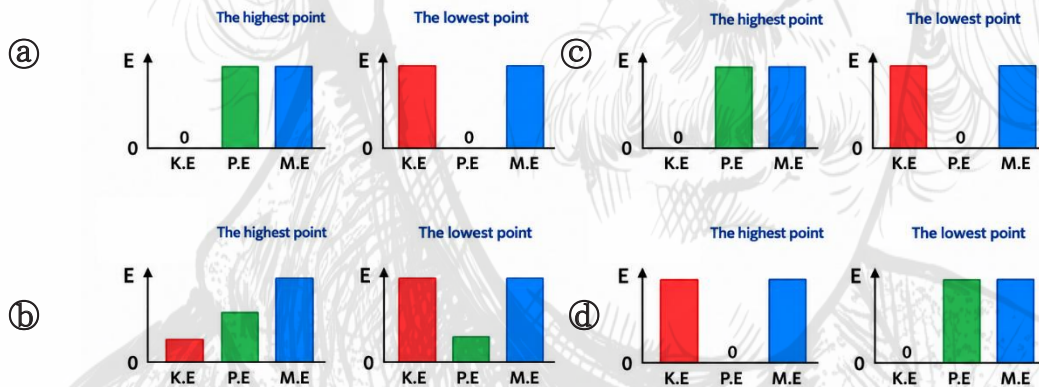
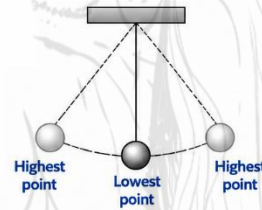


18

A **pendulum bob** swings back and forth between two extreme positions. **Neglect air resistance.**

Which of the following correctly represents the **energy bar diagrams** at the following positions?

- (1) At the **highest point** (maximum displacement).
 (2) At the **lowest point** (equilibrium position).



19

Which of the following is defined as "the energy stored in the configuration of a system of objects that exert forces on one another"?

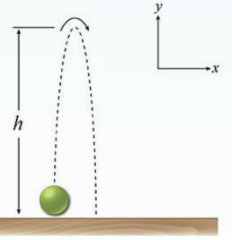
- (a) Potential energy (b) Kinetic energy (c) Thermal energy (d) Chemical energy

ابدأ من اليوم، ولا تنتظر الوقت المثالي،
 فالنجاح يبدأ بخطوة صغيرة.
 استاذ عبدالرحمن عصام عبيد

- 20 A ball is released from rest at a certain height and falls vertically toward the ground. Air resistance is negligible.

Which statement correctly describes the **energy changes** of the ball during its fall?

- (a) Its **gravitational potential energy decreases**, while its **kinetic energy increases**.
 (b) Its **gravitational potential energy increases**, while its **kinetic energy decreases**.
 (c) Its **kinetic energy remains constant**, while its **mechanical energy decreases**.
 (d) Its **gravitational potential energy remains constant**, while its **kinetic energy increases**.



- 21 The image shows a **spring being stretched** by two hands.

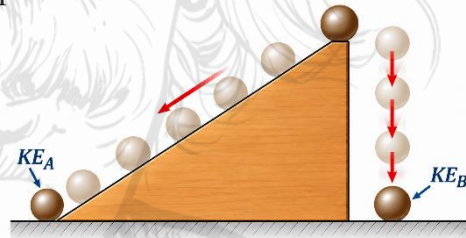


Which statement correctly describes the **energy stored in the spring** as it is stretched further?

- (a) The **elastic potential energy decreases**. (b) The **elastic potential energy increases**.
 (c) The elastic potential energy remains constant (d) The spring loses all its stored energy

- 22 A ball moves along a **smooth inclined plane** as shown in the figure. The ball has a **gravitational potential energy of 20.0 J** at the top. Using the **law of conservation of mechanical energy**, determine the **kinetic energy** at points A and B.

- (a) $KE_a = 40.0 \text{ J}$, $KE_b = 40.0 \text{ J}$
 (b) $KE_a = 20.0 \text{ J}$, $KE_b = 40.0 \text{ J}$
 (c) $KE_a = 40.0 \text{ J}$, $KE_b = 20.0 \text{ J}$
 (d) $KE_a = 20.0 \text{ J}$, $KE_b = 20.0 \text{ J}$



- 23 A student kicks a ball to the right. The ball is initially moving to the right.

Which statement correctly describes what happens to the ball?

- (a) **Positive work** is done on the ball, so its **kinetic energy decreases**.
 (b) **Negative work** is done on the ball, so its **kinetic energy decreases**.
 (c) **No work** is done because the ball is already moving.
 (d) **Positive work** is done on the ball, so its **kinetic energy increases**.



وتذكر أن كل خطوة صغيرة
تقربك من هدفك.
استاذ عبدالرحمن عصام عبيد