تم تحميل هذا الملف من موقع المناهج الإماراتية

مراجعة نهائية في مادة الفيزياء منهج انجليزي

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

تاريخ إضافة الملف على موقع المناهج: 2024-11-26 15:55:17

المزيد من مادة فيزياء:	ملفات ا كتب للمعلم ا كتب 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

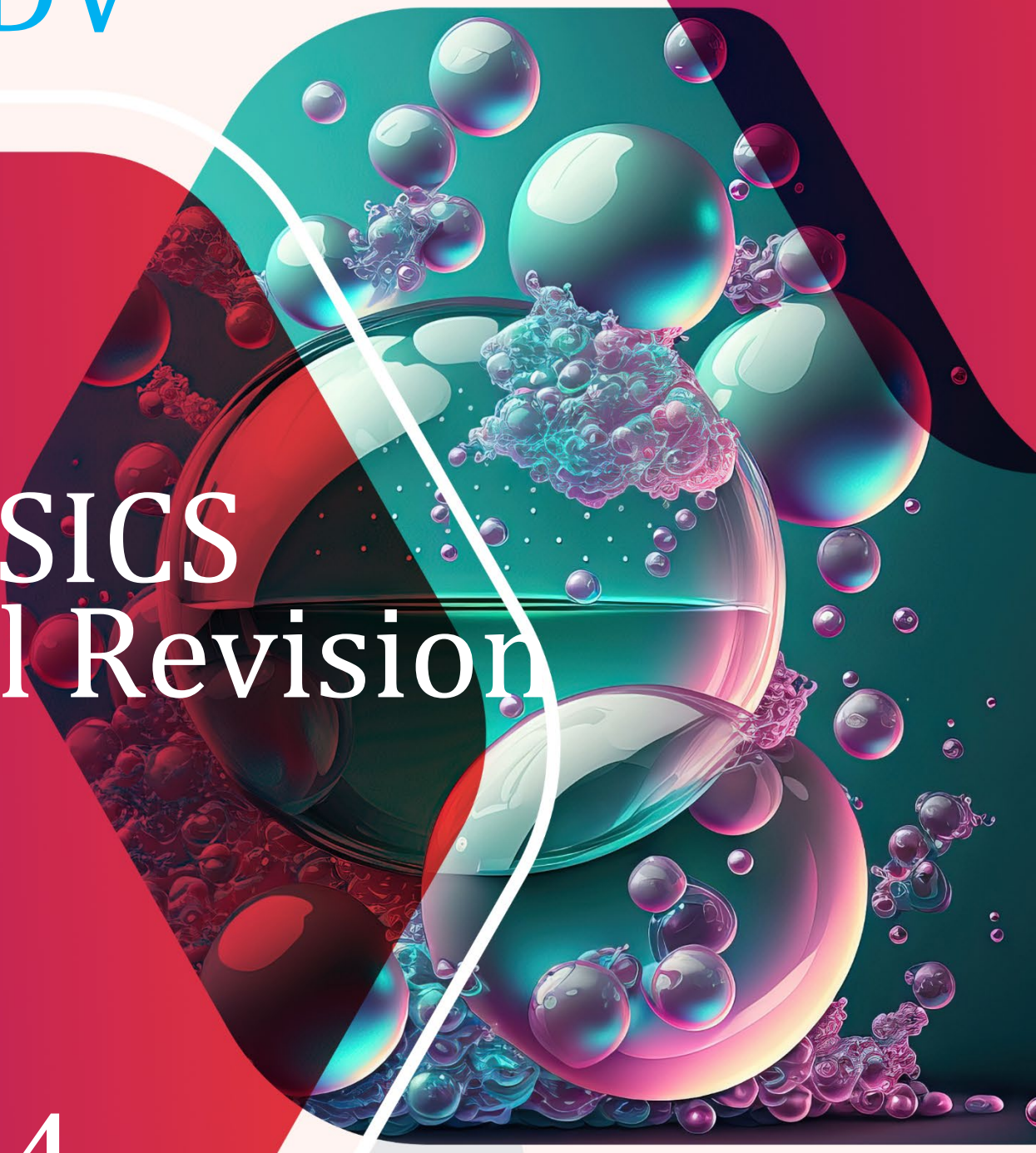
التواصل الاجتماعي بحسب الصف الثاني عشر المتقدم

صفحة المناهج الإماراتية على فيسبوك					
المواد على تلغرام	التربية الاسلامية	اللغة العربية	اللغة الانجليزية	الرياضيات	

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

1	أسئلة امتحان تدريبي نهاية الفصل وفق الهيكل الوزاري
2	حل نموذج اختبار تجريبي وفق الهيكل الوزاري
3	نموذج اختبار تجريبي وفق الهيكل الوزاري
4	حل نموذج اختبار القسم الكتابي وفق الهيكل الوزاري
5	تجميعة جميع قوانين الفيزياء في الكتاب

12 ADV



PHYSICS
Final Revision

2024

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charges are quantized

An object with a charge of $(-6\times10^{-12}C)$ **, how many electrons must the body loss or gain until its charge becomes** $(-1.2\times10^{-12}C)$ **?**

A. gain 1.13×10^{7}
B. lose 1.13×10^{7}
C. gain 3×10^{7}
D. lose 3×10^{7}

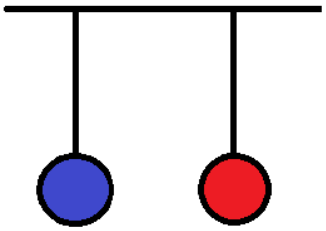
A metal sphere has a charge of +8.0 µC. What is the net charge after 6.0×10^{13} electrons have been placed on it?

A. - 1.6 µC
B. + 9.6 µC
C. - 9.6 µC
D. + 1.6 µC

A glass rod that has been charged to +8 x 10^{-9} C is touched to a metal can. Afterward, the glass rod's charge is +6 x 10^{-9} C. How many electrons were transferred from the can to the rod?	يتم لمس قضيب زجاجي مشحون بشحنة +8 x 10^{-9} C إلى علبة معدنية. بعد ذلك ، تبلغ شحنة قضيب الزجاج +6 x 10^{-9} C كم عدد الإلكترونات التي تم نقلها من العلبة إلى القضيب؟

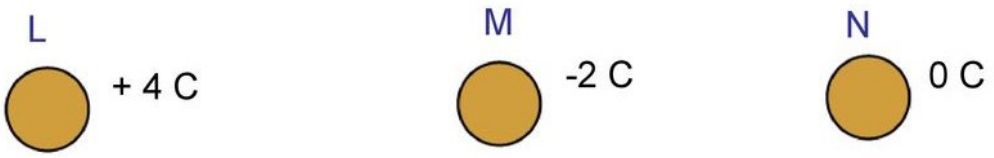
A	1.88 X 10^{10} ELECTRONS
B	1.25 X 10^{10} ELECTRONS
C	3.75 X 10^{10} ELECTRONS
D	2.50 X 10^{10} ELECTRONS

The figure shows a blue ball which initially has a charge $+6.4 \times 10^{-8}$ C then it touches a neutral red ball. After the balls are separated, the red ball has a charge of $+2.6 \times 10^{-8}$ C, what is the charge on the blue ball?	يوضح الشكل كرة زرقاء تحتوي في البداية على شحنة $+6.4 \times 10^{-8}$ C ثم تلمس كرة حمراء متعادله. بعد فصل الكرات ، تكون الكرة الحمراء مشحونة بشحنة $+2.6 \times 10^{-8}$ C ، ما هي الشحنة على الكرة الزرقاء؟



A	$+ 3.8 \times 10^{-8}$ C
B	$- 3.8 \times 10^{-8}$ C
C	$- 6.4 \times 10^{-8}$ C
D	0

Three identical metal balls L, M and N initially have charge 4 C, -2 C and 0 C, respectively, as shown below.



What is the charge on N after you let L first touch M, and then remove L and let M touch N?

A	2
B	1
C	$\frac{4}{3}$
D	0.5

What fraction of the electrons would you have to remove from a 10.0 mg sphere of iron (Z = 26, A = 56) in order to make its charge 1.00 C?	ما هي نسبه الإلكترونات التي يجب عليك إزالتها من كرة 10.0 mg من الحديد (Z = 26، A = 56) لجعل شحنتها 1.00 C ؟
a. 0.224 % b. 0.482 % c. 2.24×10^{-4} d. 4.82×10^{-4} e. 4.00×10^{-7}	a. 0.224 % b. 0.482 % c. 2.24×10^{-4} d. 4.82×10^{-4} e. 4.00×10^{-7}

A piece of a metal with a charge of (-6.4C) contains (2.0×10^{20} protons). What is the number of electrons in this piece?

conductors, nonconductors (insulators), semiconductors, and superconductors

Conductors	Insulators
Metals are good conductors of electricity because they contain free electrons	insulators such as plastic and rubber do not generally contain free electrons and so are poor conductors of electricity

Semiconductors

- The first widespread use of semiconductors was in transistors
- Semiconductors are of two kinds: intrinsic and extrinsic. Examples of intrinsic semiconductors are chemically pure crystals of gallium arsenide, germanium, or, especially, silicon.

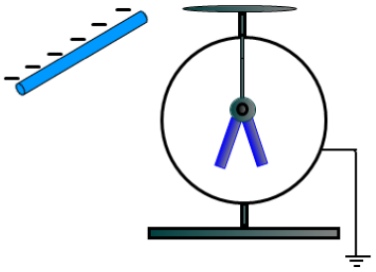
Engineers produce extrinsic semiconductors by **doping**

Superconductors are materials that have zero resistance to the conduction of electricity

- Materials are superconducting only at very low temperatures

Describe the charging of an electroscope by contact and by induction

A negatively charged rod is brought near an uncharged, grounded electroscope. Which of the following statements is true?



A. The positive charge flows from the electroscope to the ground

B. The positive charge flows from the ground to the electroscope

C. The negative charge flows from the electroscope to the ground

D. The negative charge flows from the ground to the electroscope

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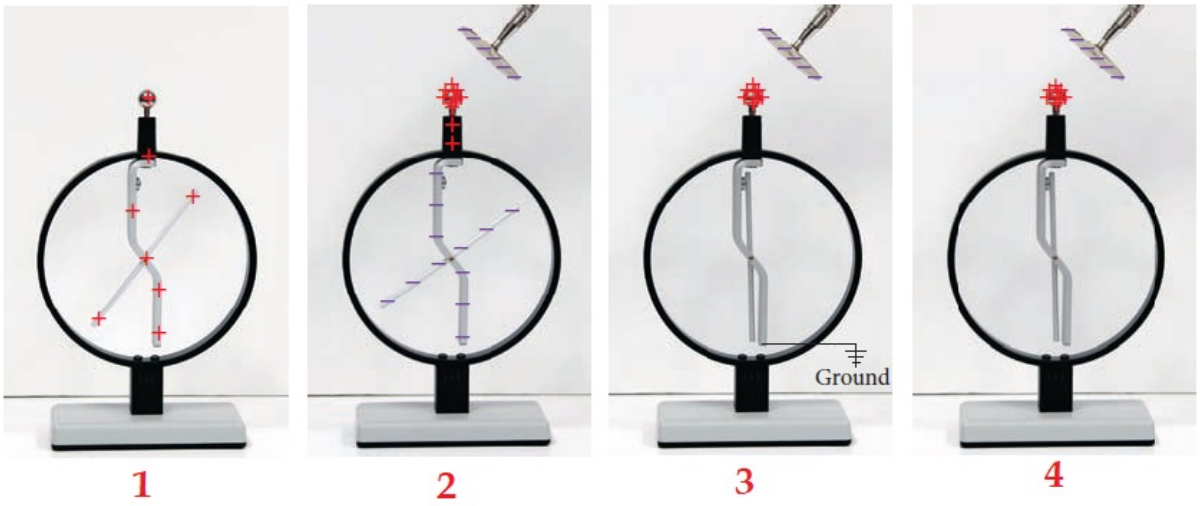
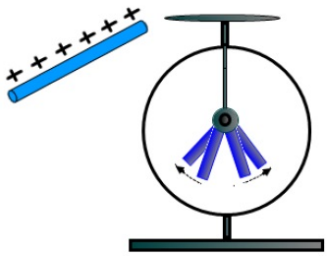
What is the correct order for a neutral telescope to be charged by induction



A	1 – 2 – 3 – 4
B	2 – 3 – 4 – 1
C	4 – 1 – 2 – 3
D	4 – 2 – 3 – 1

positively charged rod is brought near a charged electroscope. As a result of doing this, the electroscope leaves move further apart. What is the charge on the electroscope?



A. Positive

B. Negative

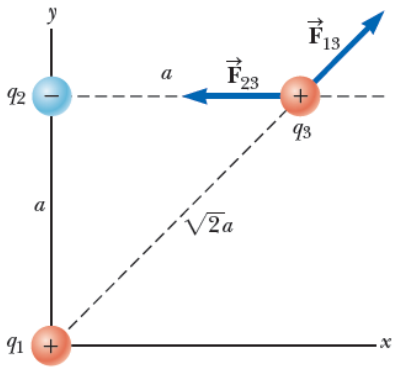
C. It is neutral

D. It depends on the distance between the electroscope and the rod

Apply Coulomb's law to relate the magnitude of the electrostatic force

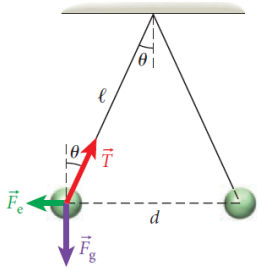
Two identical small conducting spheres, separated by distance of 20.0 cm, have equal electric charge. How many excess electrons must be present on each sphere if the magnitude of the force of repulsion between them is 3.33×10^{-21} N?	**كرتان موصلين متطابقة، مفصولة بمسافة 20.0 cm، لهما شحنة كهربائية متساوية. كم عدد الإلكترونات الزائدة التي يجب أن تكون موجودة في كل كرة إذا كان حجم قوة التنافر بينها 3.33×10^{-21} N؟**

Consider three point charges located at the corners of a right triangle as shown, where $q_1 = q_3 = 5.00\ \mu C$, $q_2 = 2.00\ \mu C$, and $a = 0.100$ m. Find the resultant force exerted on q_3.	ثلاث شحنات نقطية تقع في زوايا مثلث قائم الزاوية كما هو موضح ، $q_1 = q_3 = 5.00\ \mu C$, $q_2 = 2.00\ \mu C$, and $a = 0.100$ m. القوة المحصلة المؤثرة على q_3.



A	F = (1.04 $\hat{x}$ + 7.94 $\hat{y}$) N
B	F = (7.94 $\hat{x}$ – 1.04 $\hat{y}$) N
C	F = (-1.04 $\hat{x}$ + 7.94 $\hat{y}$) N
D	F = (-7.94 $\hat{x}$ + 1.04 $\hat{y}$) N

Two balls have the same mass, 0.9680 kg, and the same charge, 29.59 µC. They hang from the ceiling on strings of identical length, ℓ , as shown in the figure. If the angle of the strings with respect to the vertical is 29.79°, what is the length of the strings?	كرتان لهما الكتلة نفسها 0.9680 kg ، ونفس الشحنة ، 29.59 µC يتدليان من السقف على خيوط متطابقة الطول ، ℓ ، كما هو موضح في الشكل. إذا كانت زاوية الأوتار بالنسبة للعمودي 29.79°، فما طول الأوتار؟

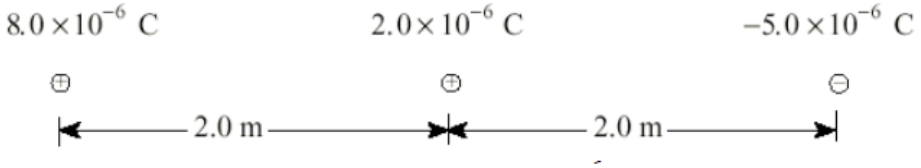


A- 1.211 m.
B- 2.511 m.
C- 9.211 m.
D- 0.012 m.

A - 2.3 x 10^{-6} C charge exerts a repulsive force of magnitude 0.35 N on an unknown charge 0.20 m away. **What are the magnitude and sign of the unknown charge?**	شحنة 2.3 x 10^{-6} C - تؤثر بقوة تنافر مقدارها 0.35 N على شحنة غير معروفة على بعد 0.20 m **ما مقدار واشارة الشحنة المجهولة؟**

	MAGNITUDE	POLARITY
a.	6.8 x 10^{-7} C	Negative
b.	6.8 x 10^{-7} C	Positive
c.	1.2 x 10^{-6} C	Negative
d.	1.2 x 10^{-6} C	Positive

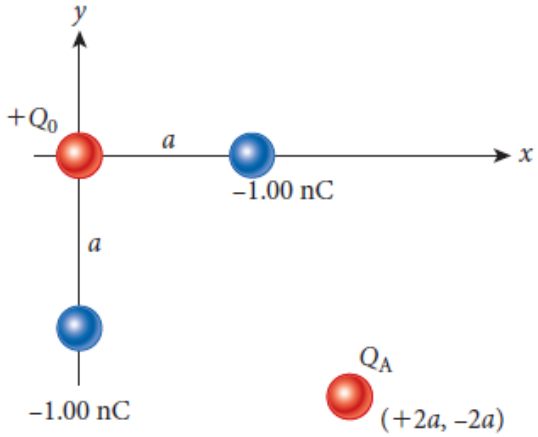
Find the net force on the 2.0 x 10^{-6} C charge.	**أوجد القوة الكلية المؤثرة على الشحنة 2.0 x 10^{-6} C**

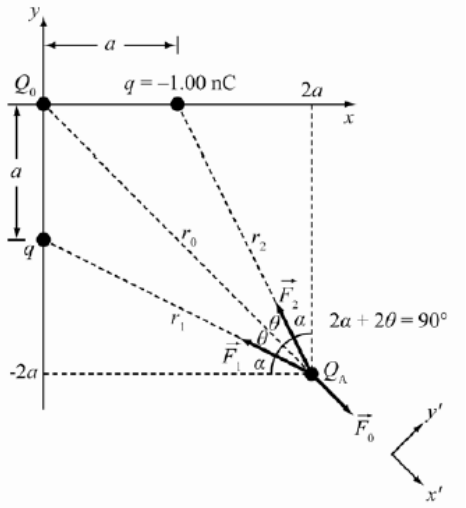


a. 1.4 x 10^{-2} N towards the left	b. 1.4 x 10^{-2} N towards the right
c. 5.9 x 10^{-2} N towards the left	d. 5.9 x 10^{-2}N towards the right

Paper based

In the figure, the net electrostatic force on charge Q_A is zero. If $Q_A = +1.00$ nC, determine the magnitude of Q_0.





$$\theta + \alpha = 45^o \rightarrow \alpha = tan^{-1}\left(\frac{a}{2a}\right) = 26.6^o \rightarrow \theta = 45 - 26.6 = 18.43^o$$

$$r_o = \sqrt{(2a)^2 + (2a)^2} = \sqrt{4a^2(1+1)} = 2a\sqrt{2} \quad \& \; r_1 = r_2 = \sqrt{a^2 + (2a)^2} = \sqrt{a^2(1+4)} = a\sqrt{5}$$

$$F_{O\rightarrow A} = F_{1,A} + F_{2,A}$$

$$F_{O\rightarrow A} = F_{1,A}cos\theta + F_{2,A}cos\theta = F \times 2cos\theta$$

$$\frac{Q_o}{(r_o)^2} = \frac{q}{(r_1)^2}2cos\theta$$

$$\frac{Q_o}{(2a\sqrt{2})^2} = \frac{q}{(a\sqrt{5})^2} \times 2cos\theta$$

$$\frac{Q_o}{2\sqrt{2}} = \frac{1 \times 10^{-9}}{\sqrt{5}}2cos18.43^o$$

$$Q_o = \frac{(2\sqrt{2})^2 \times 1 \times 10^{-9} \times 2cos18.43^o}{(\sqrt{5})^2} = 3.03 \times 10^{-9} C$$

General Charge Distributions

$$\left.\begin{aligned} dq &= \lambda\, dx \\ dq &= \sigma\, dA \\ dq &= \rho\, dV \end{aligned}\right\} \text{ for a charge distribution } \begin{cases} \text{along a line;} \\ \text{over a surface;} \\ \text{throughout a volume.} \end{cases}$$

Name	Symbol	SI Unit
Linear charge density	λ	C/m
Surface charge density	σ	C/m^2
Volume charge density	ρ	C/m^3

The electric force affecting a charge above infinite conducting sheet can be found by the following formula

$$F = q\frac{X}{\varepsilon_0}$$

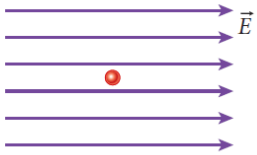
The unit of X is .....

A. C/m
B. C/m^2
C. C/m^3
D. C.m

Apply the relationship between the electric field E and the electric force F and the charge q

Concept Check 22.5

A small positively charged object is placed at rest in a uniform electric field as shown in the figure. When the object is released, it will



a) not move.

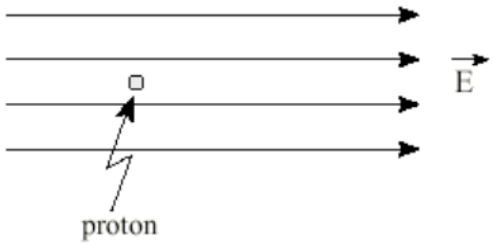
b) begin to move with a constant speed.

c) begin to move with a constant acceleration.

d) begin to move with an increasing acceleration.

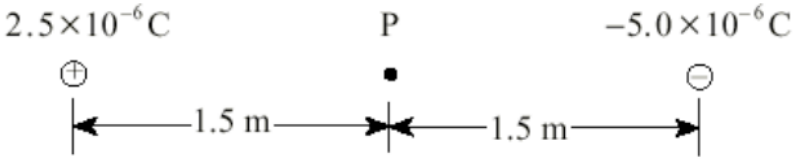
e) move back and forth in simple harmonic motion.

What is the acceleration of a proton in a uniform 2.5 x 10^5 N/C electric field as shown below?	**ما عجلة البروتون في المجال الكهربائي المنتظم 2.5 x 10^5 N/C كما هو موضح أدناه؟**



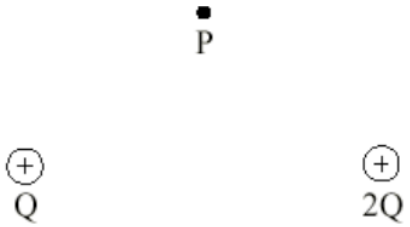
	MAGNITUDE OF ACCELERATION	DIRECTION OF ACCELERATION
a.	2.4 x 10^{13} m/s^2	Right
b.	2.4 x 10^{13} m/s^2	Left
c.	1.5 x 10^{32} m/s^2	Right
d.	1.5 x 10^{32}m/s^2	Left

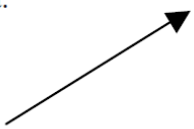
Two point charges, 2.5 x 10^{-6} C and -5.0 x 10^{-6} C , are placed 3.0 m apart **What is the magnitude of the electric field at point P, midway between the two charges?**	**ما مقدار المجال الكهربي عند النقطة P في منتصف المسافة بين الشحنتين؟**



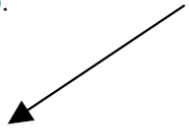
a. 0 N/C
b. 1.0 x 10^4 N /C
c. 2.0 x 10^4 N/C
d. 3.0 x 10^4 N/C

Which vector best represents the direction of **the electric field at point P**, which is equidistant from both charges?	ما المتجه الأفضل الذي **يمثل اتجاه المجال الكهربائي عند النقطة P** ، والتي تقع على مسافة متساوية من كلتا الشحنتين؟



a.


c.

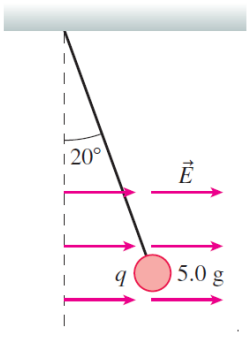

b.


d.

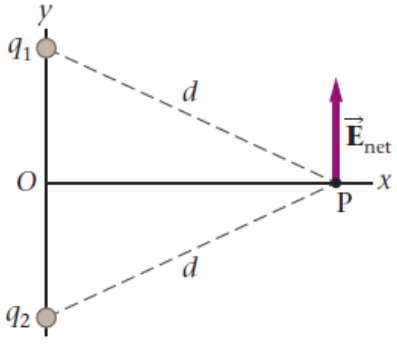

The electric field 2.0 m from a point charge has a magnitude of 8.0×10^4 N/C. **What is the strength of the electric field at a distance of 4.0 m?**	المجال الكهربي على بعد 2.0 م من شحنة تقطيه له مقدار 8.0×10^4 N/C **ما هي قيمة المجال الكهربائي عند المسافة 4.0 م؟**

a. 2.0×10^4 N/C
b. 4.0×10^4 N/C
c. 1.6×10^5 N/C
d. 3.2×10^5 N/C

An electric field $\vec{E} = (100{,}000$ N/C, right) causes the 5.0 g ball in Figure P20.71 to hang at a 20° angle. What is the charge on the ball?

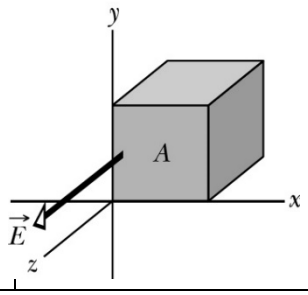


Two charges, q_1 and q_2, have equal magnitudes q and are placed as shown in the accompanying sketch. The net electric field at point P is directed vertically upward. Can we conclude that q_1 is positive and q_2 is negative, q_1 is negative and q_2 is positive, or q_1 and q_2 have the same sign?



Apply the relationship between the charge density and the electric field magnitude E and also specify the direction of the field for points near a flat thin, infinite or large, nonconducting/conducting surface with a uniform charge density

Gaussian cube of face area A is immersed in a uniform electric field E that has positive direction along z axis In terms of E and A, **what is the flux through Front surface** and **Right surface**



ما التدفق خلال السطح الأمامي و الايمن

	Front surface السطح الأمامي	Right surface السطح الايمن
A	- EA	+ EA
B	+ EA	EA cos 90
C	0	- EA
D	EA cos 90	- 0

What is the electric flux through each of the surfaces A to E in FIGURE Q24.6? Give each answer as a multiple of q/ϵ_0.

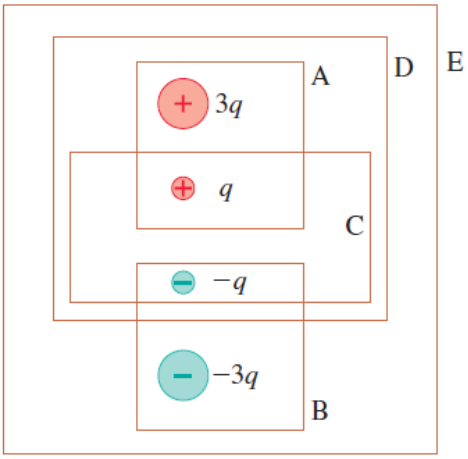
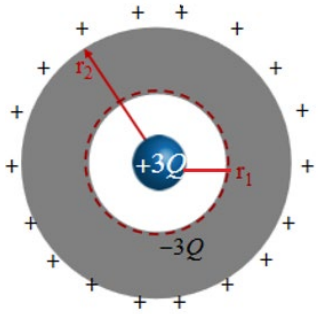


FIGURE Q24.6

If a hollow conducting sphere is gives a charge of -Q and we put a charge of +3Q in its center **What is the electric field at the following points**	إذا أعطيت كرة موصلة مجوفة شحنة Q- ووضعنا شحنة 3Q+ في مركزها ما هو المجال الكهربائي في النقاط التالية



	At r < r_1	At r > r_2
A	Zero	$\frac{K\ 2Q}{r^2}$
B	$\frac{K\ 2Q}{r^2}$	$\frac{K\ 3Q}{r^2}$
C	$\frac{K\ 3Q}{r^2}$	$\frac{K\ Q}{r^2}$
D	$\frac{K\ 3Q}{r^2}$	$\frac{K\ 2Q}{r^2}$

Consider a conducting sphere of radius $r_1 = 1\text{m}$ and a conducting spherical shell of inner radius $r_2 = 3\text{m}$ and outer radius $r_3 = 5\text{m}$. The charge on the inner sphere is $Q_1 = -0.6\mu\text{C}$. The net charge on the shell is zero.

(a) Find the charge Q_2 on the inner surface and the charge Q_3 on the outer surface of the shell.
(b) Find magnitude and direction of the electric field at point A between the sphere and the shell.
(c) Find magnitude and direction of the electric field at point B inside the shell.
(d) Find magnitude and direction of the electric field at point C outside the shell.

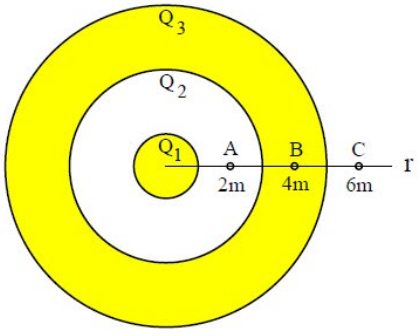
Solution:

(a) Gauss's law implies that $Q_2 = -Q_1 = +0.6\mu\text{C}$.
Given that $Q_2 + Q_3 = 0$ we infer $Q_3 = -0.6\mu\text{C}$.

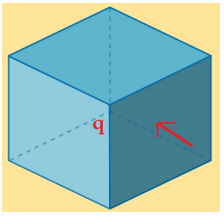
(b) $E_A = k\frac{0.6\mu\text{C}}{(2\text{m})^2} = 1349\text{N/C}$ (inward).

(c) $E_B = 0$ inside conductor.

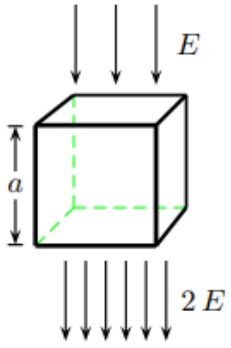
(d) $E_C = k\frac{0.6\mu\text{C}}{(6\text{m})^2} = 150\text{N/C}$ (inward).



A single point charge is placed at the center of an imaginary cube that has 20-cm-long edges. The electric flux of one of the cube's sides is -1.50 kN·m² /C. How much charge is at the center?



A cubic box of side a, oriented as shown, contains an unknown charge. The vertically directed electric field has a uniform magnitude E at the top surface and 2 E at the bottom surface.



How much charge Q is inside the box?

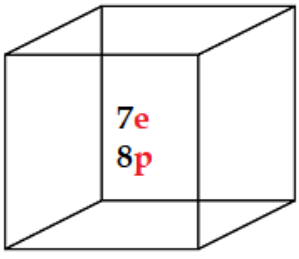
A. $Q_{encl} = \epsilon_0 E a^2$

B. $Q_{encl} = 3\,\epsilon_0 E a^2$

C. $Q_{encl} = 2\,\epsilon_0 E a^2$

D. $Q_{encl} = 0$

Assume the cube shown in the figure contains seven electrons, eight neutrons, and a number of protons, if the electric flux through the cube is 3.62 x 10^{-8} Nm²/C How many protons in the cube?



The charged conducting spherical shell has a 2m inner radius and a 4m outer radius. The charge on the outer surface is $Q_{\text{ext}} = 8\text{nC}$. There is a point charge $Q_{\text{p}} = 3\text{nC}$ at the center.

(a) Find the charge Q_{int} on the inner surface of the shell.

(b) Find the surface charge density σ_{ext} on the outer surface of the shell.

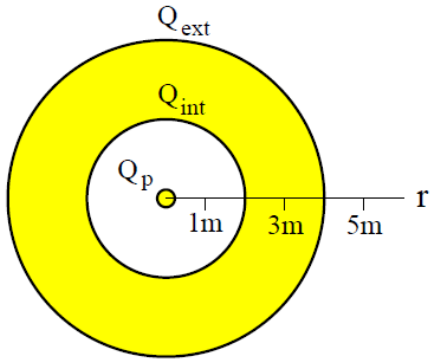
(c) Find the electric flux Φ_E through a Gaussian sphere of radius $r = 5\text{m}$.

Solution:

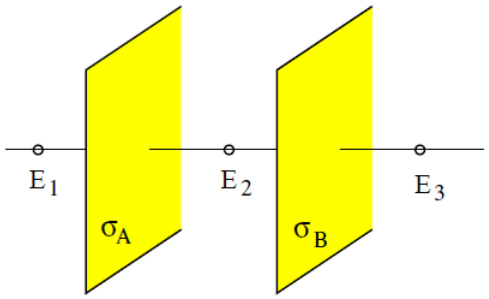
(a) $Q_{\text{int}} = -Q_{\text{p}} = -3\text{nC}.$

(b) $\sigma_{\text{ext}} = \dfrac{Q_{\text{ext}}}{4\pi(4\text{m})^2} = 3.98 \times 10^{-11}\text{C/m}^2.$

(c) $\Phi_E = \dfrac{Q_{\text{ext}}}{\epsilon_0} = 904\text{Nm}^2/\text{C}.$



Consider two very large uniformly charged parallel sheets as shown. The charge densities are σ_A = +7 x 10^{-12} C/m^2 and σ_B= -4 x 10^{-12} C/m^2, respectively. Find magnitude and direction (left/right) of the electric fields E_1 , E_2 and E_3	**لوحين متوازيين من مادة عازلة مشحونة بشكل موحد كما هو موضح. كثافة الشحنة السطحية.** **σ_A = +7 x 10^{-12} C/m^2** **. σ_B= -4 x 10^{-12} C/m^2** **اوجد مقدار واتجاه المجالات الكهربائية .** **E_1 , E_2 and E_3**



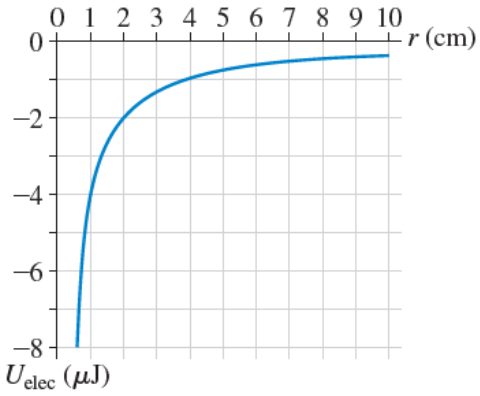
	E_1	E_2	E_3
A	0.43 N/C ⟵	0.12 N/C ⟶	0.43 N/C ⟶
B	0.17 N/C ⟵	0.63 N/C ⟶	0.17 N/C ⟶
C	0.63 N/C ⟵	0.17 N/C ⟶	0.63 N/C ⟶
D	0.63 N/C ⟶	0.17 N/C ⟵	0.63 N/C ⟶

Relate the component of the electric field along a certain direction Es to the change in the electric potential along that direction (E_s =-dV/ds)

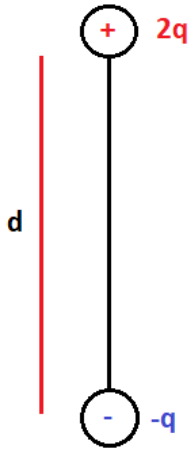
The electric potential at a point in space is given by the relation $V = 23x - 27y + 11y^2 + 72$. What is the magnitude of the electric field (in V/m) at the point r = (3.0,2.0,1.0)?	الجهد الكهربي عند نقطة ما فى الفضاء مُعطى بالعلاقة $V = 23x - 27y + 11y^2 + 72$. ما مقدار المجال الكهربي (V / m) عند النقطة r= (3.0،2.0،1.0)؟
a. 5 b. 23 c. 29 d. 59 e. 131	a. 5 b. 23 c. 29 d. 59 e. 131

Calculate the potential energy of a system of pair of charged particles

The graph in Figure shows the electric potential energy as a function of separation for two point charges. If one charge is +0.44 nC, what is the other charge?	يوضح الرسم البياني في الشكل طاقة الوضع الكهربائي كدالة لفصل شحنتين نقطتين. إذا كانت إحدى الشحنة +0.44 nC، فما الشحنة الأخرى؟

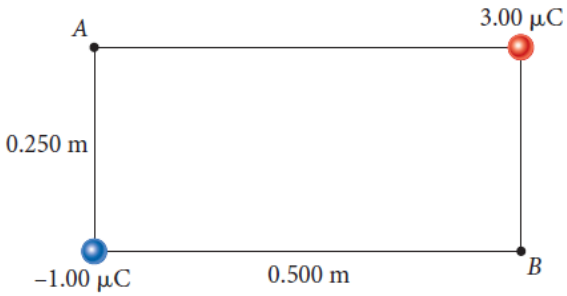


What is the net electric potential **in the midway** between
The two charges
ما مقدار محصله الجهد الكهربي في **منتصف المسافة** بين الشحنتين



$\frac{2kq}{d}$	$\frac{-2kq}{d}$
$\frac{kq}{2d}$	$\frac{4kq}{d}$

What the potential energy of the system And $V_B - V_A$	**ما طاقة الوضع الكهربية للنظام التالي من الشحنات وفرق الجهد $V_B - V_A$**



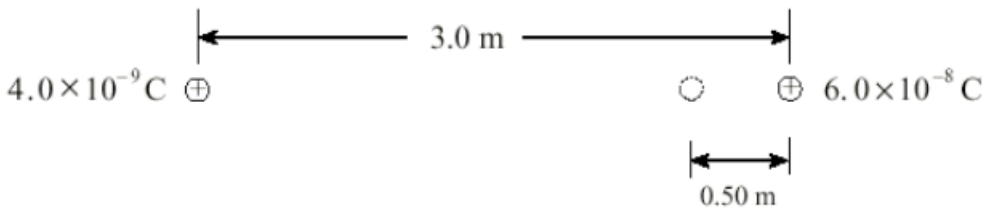
	Electric potential energy	$V_B - V_A$
A	- 0.48 J	7.19×10^4 V
B	- 0.28 J	-5.12×10^4 V
C	- 0.48 J	-7.19×10^4 V
D	- 0.28 J	5.12×10^4 V

apply the law of conservation of energy to relate different energies (or energy differences) existing in the system like change in KE, change in Electric potential energy, and work done by a force

When a charge is accelerated through a potential difference of 500 V, its kinetic energy increases from 2.0×10^{-5} J to 6.0×10^{-5} J. **What is the magnitude of the charge?**	عندما يتم تسريع الشحنة من خلال فرق جهد قدره 500 فولت ، تزداد طاقتها الحركية من 2.0×10^{-5} J إلى 6.0×10^{-5} J **ما مقدار الشحنة؟**

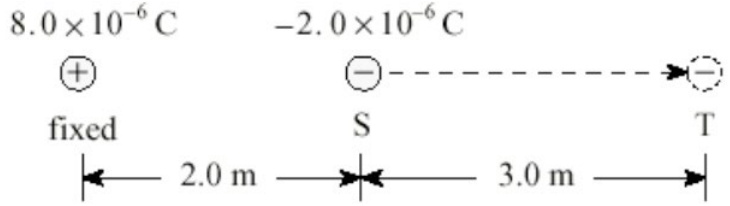
a. 4.0×10^{-8} C	b. 8.0×10^{-8} C
c. 1.2×10^{-7} C	d. 1.6×10^{-7} C

A 4.0×10^{-9} C charge is initially located 3.0 m from a stationary 6.0×10^{-8} C charge. **How much work is required to move the 4.0×10^{-9} C charge to a point 0.50 m from the stationary charge?**	تقع شحنة 4.0×10^{-9} C على مسافة 3.0 m من شحنة ثابتة مقدارها 6.0×10^{-8} C **ما مقدار الشغل المطلوب لنقل الشحنة 4.0×10^{-9} C إلى النقطة 0.50 m من الشحنة الثابتة؟**



a. 6.0×10^{-7} J	b. 8.6×10^{-7} J
c. 3.6×10^{-6} J	d. 4.3×10^{-6} J

How much work is needed to move a -2.0 x 10^{-6} C charge from position S to position T as shown below?	**ما مقدار الشغل المطلوب** للتحرك شحنة -2.0 x 10^{-6} C من الموضع S إلى الموضع T كما هو موضح أدناه؟



a. 4.3 x 10^{-2} J

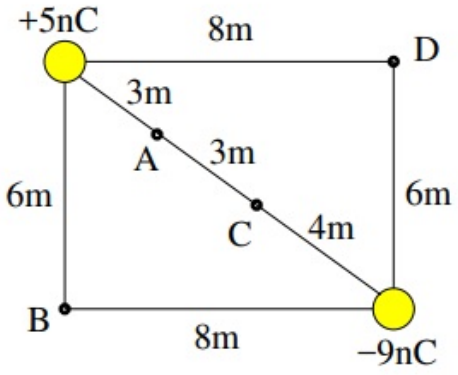
b. 4.8 x 10^{-2} J

c. 9.1 x 10^{-2} J

d. 1.1 x 10^{-1} J

Consider two point charges positioned as shown.

- Find the magnitude of the electric field at point *A*.
- Find the electric potential at point *B*.
- Find the magnitude of the electric field at point *C*.
- Find the electric potential at point *D*.

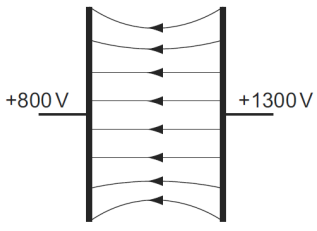


Solution:

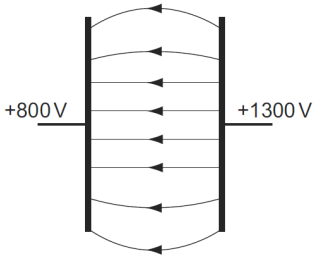
- $E_A = k\frac{|5\text{nC}|}{(3\text{m})^2} + k\frac{|-9\text{nC}|}{(7\text{m})^2} = 5.00\text{V/m} + 1.65\text{V/m} = 6.65\text{V/m}.$
- $V_B = k\frac{(+5\text{nC})}{6\text{m}} + k\frac{(-9\text{nC})}{8\text{m}} = 7.50\text{V} - 10.13\text{V} = -2.63\text{V}.$
- $E_C = k\frac{|5\text{nC}|}{(6\text{m})^2} + k\frac{|-9\text{nC}|}{(4\text{m})^2} = 1.25\text{V/m} + 5.06\text{V/m} = 6.31\text{V/m}.$
- $V_D = k\frac{(+5\text{nC})}{8\text{m}} + k\frac{(-9\text{nC})}{6\text{m}} = 5.63\text{V} - 13.5\text{V} = -7.87\text{V}.$

Two parallel metal plates are at potentials of +800V and +1300V. **Which diagram best shows the electric field between the metal plates?**	صفيحتان معدنيتان متوازيتان بجهد +800V و +1300V **ما هو الرسم التخطيطي الذي يوضح المجال الكهربائي بين الألواح المعدنية بشكل أفضل؟**

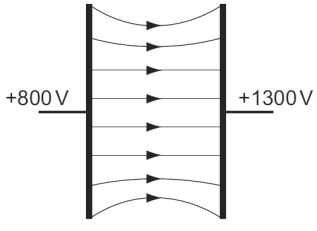
A



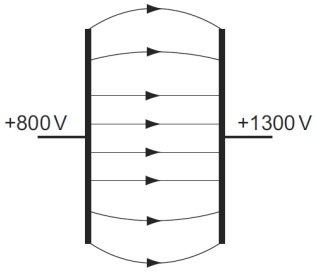
B



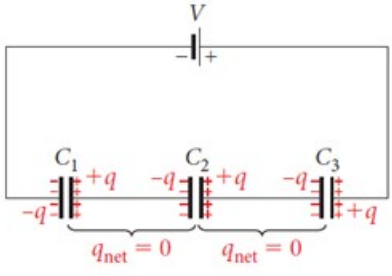
C

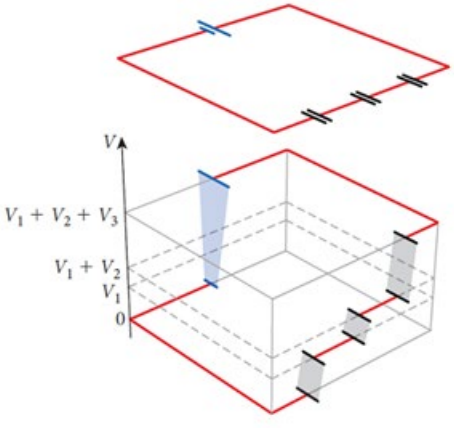


D



What is the correct order of increasing values of capacitances of the following circuit	ما هو الترتيب الصحيح لزيادة قيم سعات الدائرة التالية





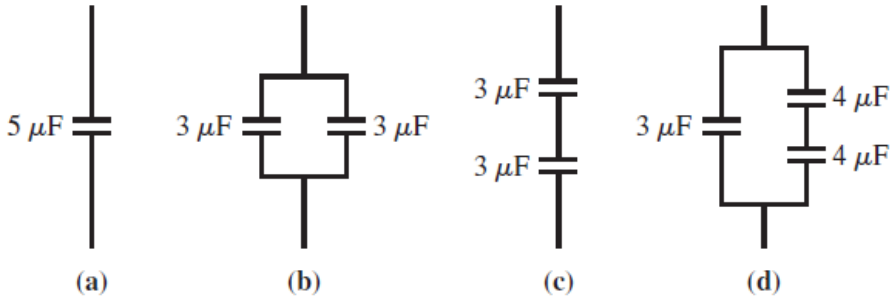
A. $C_1 = C_2 = C_3$

B. $C_1 > C_2 > C_3$

C. $C_1 < C_2 < C_3$

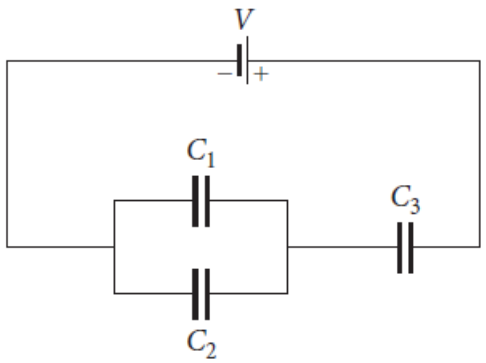
D. $C_3 < C_1 < C_2$

Rank in order, from largest to smallest, the equivalent capacitance $(C_{eq})_a$ to $(C_{eq})_d$ of circuits a to d.



رتب السعة المكافئة تنازليا للأشكال السابقة

Three capacitors are connected to a battery as shown in the figure. If $C_1 = C_2 = C_3 = 10.0$ μF and $V = 10.0$ V, **what is the charge on capacitor C_3 and C_2?**	ثلاثة مكثفات متصلة بالبطارية كما هو موضح في الشكل. إذا كان $C_1 = C_2 = C_3 = 10.0$ μF و $V = 10.0$ V, **ما مقدار الشحنة المخزنة على كلا من C_3 , C_2**



	Charge on C_2	Charge on C_3
A	133.4 μC	66.7 μC
B	66.7 μC	150 μC
C	33.35 μC	66.7 μC
D	66.7 μC	150 μC

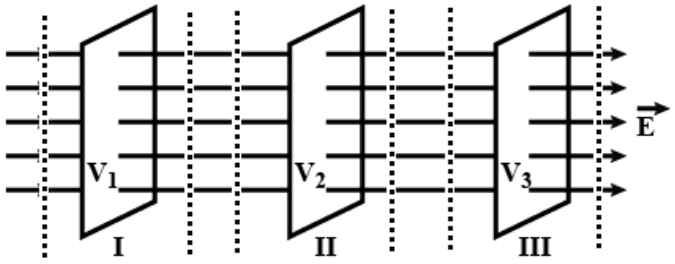
A parallel plate capacitor has a capacitance equal to *C*. What would be its capacitance if the area of each of the two plates doubled and their separation distance quadrupled? a. *C*/4 b. *C*/2 c. 2*C* d. 4*C*	**مكثف لوحي متوازي له سعة تساوي C. ما سعته إذا تضاعفت مساحة كل من الصفيحتين وتضاعفت المسافة الفاصلة بينهما أربع مرات؟** a. *C*/4 b. *C*/2 c. 2*C* d. 4*C*

Initially, a capacitor C_1 is connected to a battery of potential difference V. Then a second capacitor C_2 ($C_2 > C_1$) is added in series. What is true for C_1 now A) q_1 decreases, V_1 decreases B) q_1 remains constant, V_1 remains constant C) q_1 increases, V_1 increases D) q_1 increases, V_1 decreases	**في البداية ، يتم توصيل مكثف C_1 ببطارية ذات فرق جهد V. ثم يضاف المكثف الثاني ($C_2 > C_1$) C_2 على التوالي.** **ما هو صحيح بالنسبة لـ C_1 الآن** أ) q_1 ينقص ، V_1 ينقص ب) يظل q_1 ثابتًا ، يظل V_1 ثابتًا ج) يزيد q_1 ، يزيد V_1 د) يزيد q_1 ، ينخفض V_1

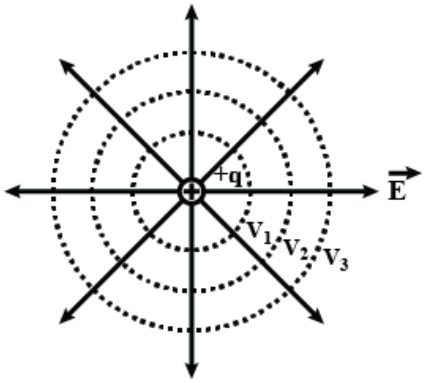
	Wire	G	Galvanometer
	Capacitor	V	Voltmeter
	Resistor	A	Ammeter
	Inductor		Battery
	Switch		AC source

Paper based

schematic representations to compare the equipotential surfaces due to a point charge, two identical charges, and two different charges



Equipotential surface in a uniform electric field



Equipotential surface due to point charge