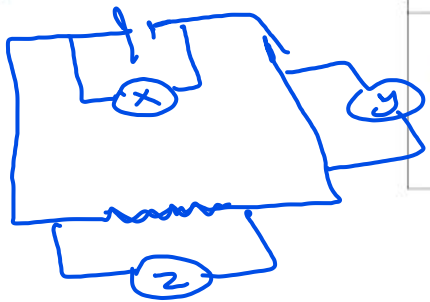

تعليم
مؤسسة الإمارات
للتعليم المدرسي
EMIRATES SCHOOLS
ESTABLISHMENT



$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\hat{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\hat{r}}{r^2}$	$\mu_0 = 4\pi\times10^{-7}\ \frac{\mathrm{T\ m}}{\mathrm{A}}$

Next Question

ينظر الشكل فولتميتر في واحد سيقيس $V = 0$

Z

Y

A voltmeter appears,
anyone will remain V = 0

X & Z

X

$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$ | $d\vec{B} = \frac{\mu_0}{4\pi}\frac{Idl\times\hat{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{Idl\sin\theta}{r^2}$ | $\mu_0 = 4\pi\times10^{-7}\ \frac{T\cdot m}{A}$

ماذا يحدث عندما يزداد فرق الجهد في موصل اسطواني

The current through the conducting cylinder decreases

يقل التيار المار في الموصل الاسطواني

The resistance of the conducting cylinder increases

تزداد مقاومة الموصل الاسطواني

What happens when the potential difference in a cylindrical conductor increases?

The current through the conducting cylinder increases

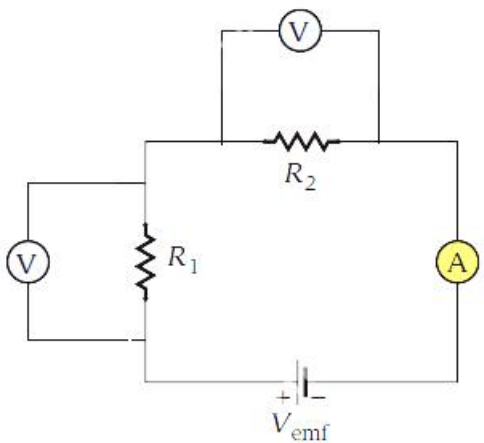
يزداد التيار المار في الموصل الاسطواني

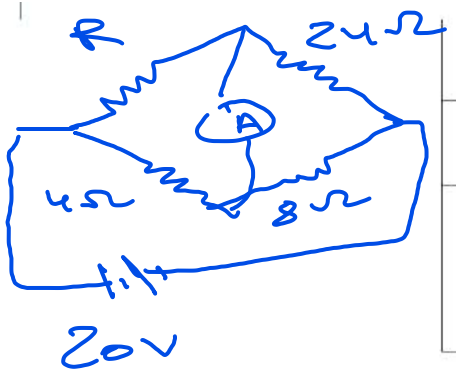
The resistance of the conducting cylinder decreases

تقل مقاومة الموصل الاسطواني

Which of the following circuits, ammeters and voltmeters are connected in to function correctly?

أي من الدوائر التالية، الأميترات والفولتميترات موصولة فيها لتعمل بشكل سليم؟





$R_u = \frac{R_1}{R_3} R_v$	$i(t) = \frac{dq}{dt} = -\left(\frac{q_{max}}{RC}\right) e^{-t/RC}$	$\vec{F}_B = q\vec{v} \times \vec{B}$
$r = \frac{mv}{\lvert q \rvert B}$	$\vec{F}_B = i\vec{L} \times \vec{B}$	$\tau = N\tau_1 = NiAB\sin\theta$
$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{id\vec{s} \times \vec{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{id\vec{s} \times \hat{r}}{r^2}$	$\mu_0 = 4\pi \times 10^{-7}\ \frac{\text{T m}}{\text{A}}$

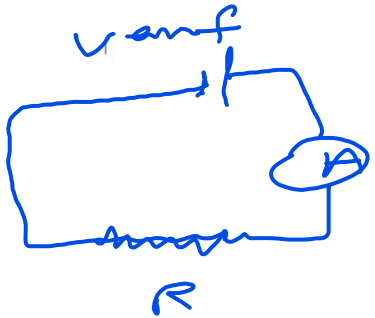
تحراء ٥ الى ميتر = ٥ ماهي مقاومة R

8Ω ○

12Ω ◉ Ammeter reading = 0, what is the resistance R?

24Ω ○

4Ω ○



$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\hat{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\hat{r}}{r^2}$	$\mu_0 = 4\pi\times10^{-7}\ \frac{\mathrm{T\ m}}{\mathrm{A}}$

emf = 6 v

R = 1.2 Ω

المقاومة الداخلية = 0.3 Ω

احسب التيار المار

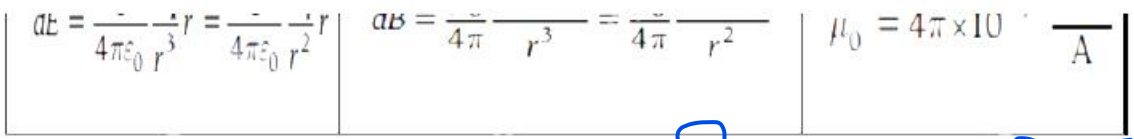
The internal resistance is 0.3, calculate the current flowing. and the resistance 1.2.

5 A

4 A

20 A

9 A



أي معايلي صحيح؟

Element	Direction of Analysis	Potential Change
R	Same as current	$+iR$
R	Opposite to current	$-iR$
V_{emv}	Same as emf	$+V_{emv}$
V_{emv}	Opposite to emf	$-V_{emv}$

Element	Direction of Analysis	Potential Change
R	Same as current	$-iR$
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V_{emv}	Same as emf	$+V_{emv}$
V_{emv}	Opposite to emf	$-V_{emv}$

Which of the following is true

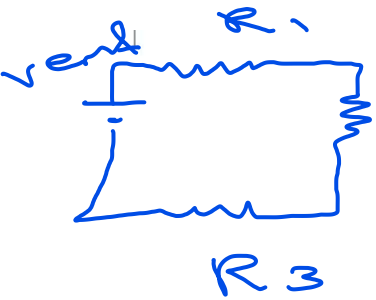
Element	Direction of Analysis	Potential Change
R	Same as current	$-iR$
R	Opposite to current	$+iR$
V_{emv}	Same as emf	$-V_{emv}$
V_{emv}	Opposite to emf	$+V_{emv}$

$$dE = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r} \qquad dB = \frac{\mu_0}{4\pi}\frac{i\,ds\sin\theta}{r^3} = \frac{\mu_0}{4\pi}\frac{i\,ds\sin\theta}{r^2} \qquad \mu_0 = 4\pi\times10^{-7}\ \frac{T\cdot m}{A}$$

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If the torque is 0.1 and the resistance is 1000, calculate the capacitance of the capacitor

- $1.0 \times 10^{3}\,F$
- $1.0 \times 10^{-4}\,F$ (selected)
- $1.0 \times 10^{-1}\,F$
- $6.0 \times 10^{-4}\,F$



$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\vec{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\hat{r}}{r^2}$	$\mu_0 = 4\pi\times10^{-7}\ \frac{\mathrm{T\ m}}{\mathrm{A}}$

$R_1 = 2\Omega$
$R_2 = 1\Omega$
$R_3 = 5\Omega$
$V_{emf} = 40\ V$

حساب التيار حسب ؟

8A

20A

5A

Calculate the current flowing

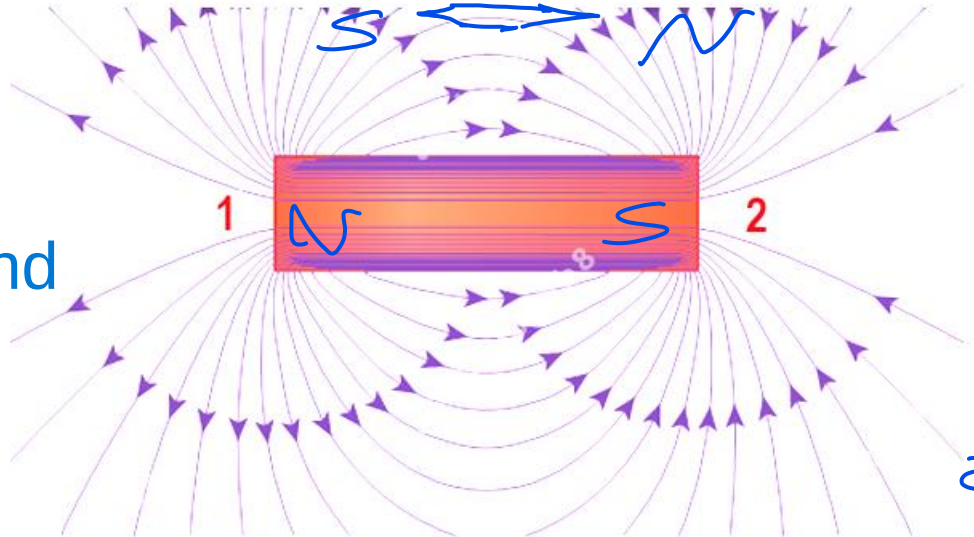
40A

هنا سؤال يقول فيه نفس التيار ولكن اذا اختلفت مساحة السلك الثاني عن السلك الاول فاي جمله صحيح

$J_2 = 3J_1$	◉
$J_2 = 9J_1$	○
$J_2 = \frac{1}{3}J_1$	○
$J_2 = \frac{1}{9}J_1$	○

Two wires carry the same current, but if the area of the second wire is 3 times the area of the first wire, which of the following is true?

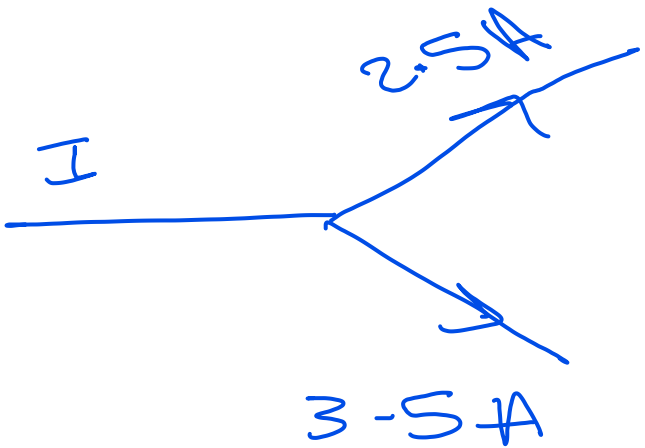
Determine which direction is north and south for compass and magnetic



حسب أي اتجاه هو الشمال والجنوب للبوصلة والمغناطيس



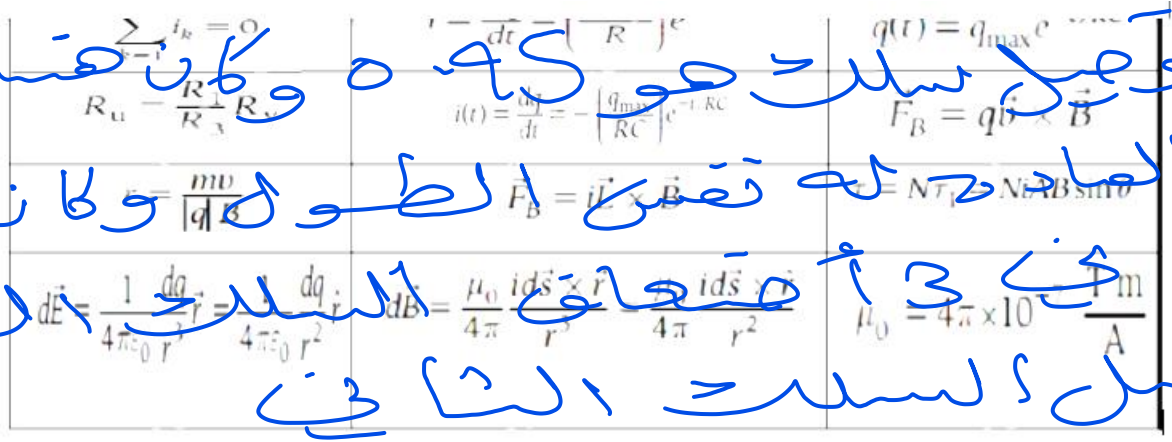
$dE = \frac{1}{4\pi\varepsilon_0}\frac{q}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{q}{r^2}\hat{r}$	$dB = \frac{\mu_0}{4\pi}\frac{I\,ds\times\hat{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{I\,ds\sin\theta}{r^2}$	$\mu_0 = 4\pi\times10^{-7}\ \frac{T\cdot m}{A}$



حدد مقدار I و اتجاهها

Determine the current magnitude and direction

- 1.0A left لليسار
- 6.0A left لليسار
- 1.0A right لليمين
- 6.0A right لليمين



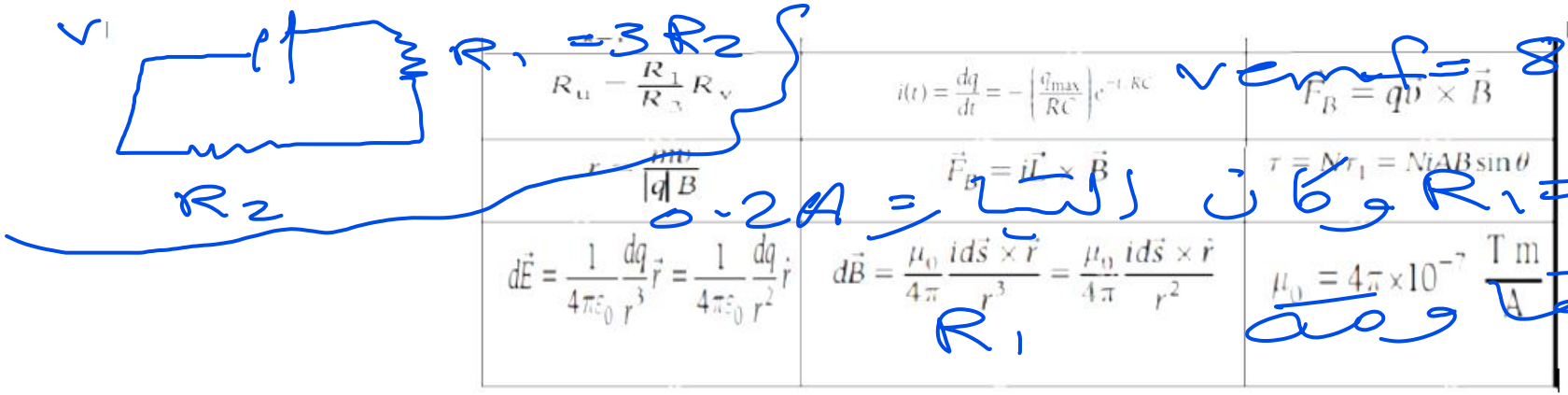
If the conductivity of the wire is 0.9S, and there is another wire of the same material and the same length, and the radius of the second wire is 3 times that of the first wire, what is the conductivity of the second wire

3.7 S

0.1 S

0.1 S

0.3 S



$R_{eq} = \frac{R_1}{R_2} R_x$	$i(t) = \frac{dq}{dt} = -\left(\frac{q_{max}}{RC}\right) e^{-t/RC}$	$F_B = qv \times B$
$r = \frac{mv}{\lvert q \rvert B}$	$\vec{F}_B = i\vec{L} \times \vec{B}$	$\tau = NF_1 = NiAB\sin\theta$
$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{ids \times \hat{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{ids \times \hat{r}}{r^2}$	$\mu_0 = 4\pi \times 10^{-7}\ \frac{T\,m}{A}$

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If Vemf = 8V and R1 = 3R2 and the current is 0.2A what is the resistance of R1

- 40.0Ω
- 10.0Ω
- 20.0Ω
- 30.0Ω

$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\vec{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{id\vec{s}\times\hat{r}}{r^2}$	$\mu_0 = 4\pi\times10^{-7}\ \frac{\mathrm{T\,m}}{\mathrm{A}}$

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clear in Arabic

$P = 640\ W$

$R = 10\ \Omega$

$\Delta V = ?$

6400 V ○

6.4V ○

80 V ◉

64 V ○

$q = 5t^2 + 7t + 9$

$R_{eq} = \frac{R_1 R_2}{R_3 R_4}$	$i(t) = \frac{dq}{dt} = -\left(\frac{q_{max}}{RC}\right) e^{-t/RC}$	$\vec{F}_B = q\vec{v} \times \vec{B}$
$r = \frac{mv}{\lvert q \rvert B}$	$\vec{F}_B = i\vec{L} \times \vec{B}$	$\tau = N\tau_1 = NiAB\sin\theta$
$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{id\vec{s} \times \vec{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{id\vec{s} \times \hat{r}}{r^2}$	$\mu_0 = 4\pi \times 10^{-7}\ \frac{T\,m}{A}$

2.5 s

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Calculate the current at:

- 18 *mA* ○
- 9 *mA* ○
- 42 *mA* ○
- 32 *mA* ◉

$\sum_{k=1}^{n} i_k = 0$	$i = \frac{dq}{dt} = \left(\frac{V_{emf}}{R}\right) e^{-t/RC}$	$q(t) = q_{max} e^{-t/RC}$
$R_{eq} = \frac{R_1}{R_3} R_x$	$i(t) = \frac{dq}{dt} = \left(\frac{q_{max}}{RC}\right) e^{-t/RC}$	$\vec{F}_B = q\vec{v} \times \vec{B}$
$r = \frac{mv}{\lvert q \rvert B}$	$\vec{F}_B = i\vec{L} \times \vec{B}$	$\tau = N\tau_1 = NiAB\sin\theta$
$d\vec{E} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^3}\vec{r} = \frac{1}{4\pi\varepsilon_0}\frac{dq}{r^2}\hat{r}$	$d\vec{B} = \frac{\mu_0}{4\pi}\frac{id\vec{s} \times \hat{r}}{r^3} = \frac{\mu_0}{4\pi}\frac{id\vec{s} \times \hat{r}}{r^2}$	$\mu_0 = 4\pi \times 10^{-7}\ \frac{T\ m}{A}$

Which of the following is equivalent to 3.2C

1.0 Milliampere-hour

1.0 ملي أمبير ساعة

1.0 Milliampere-volt

1.0 ملي أمبير فولت