

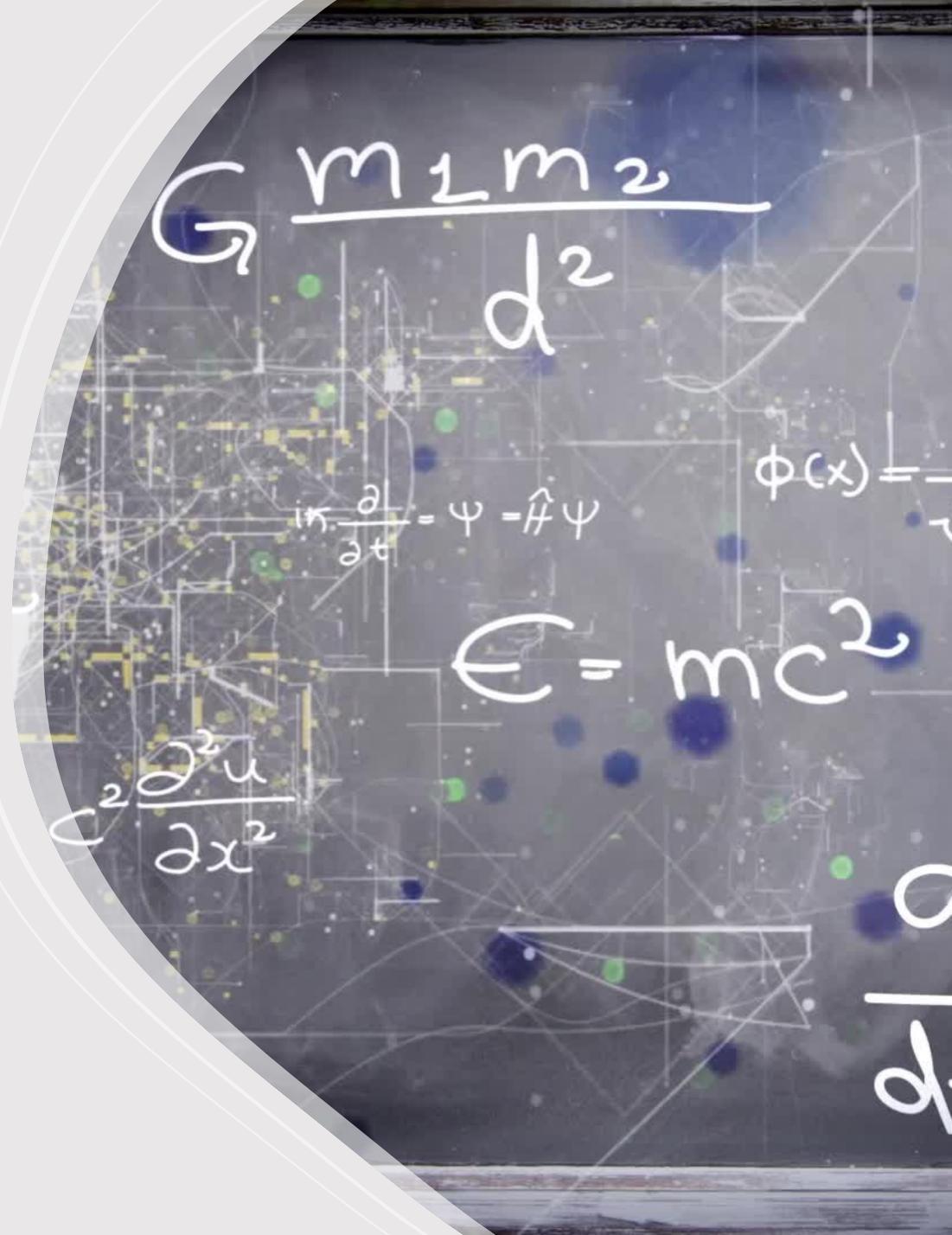
Physics 2

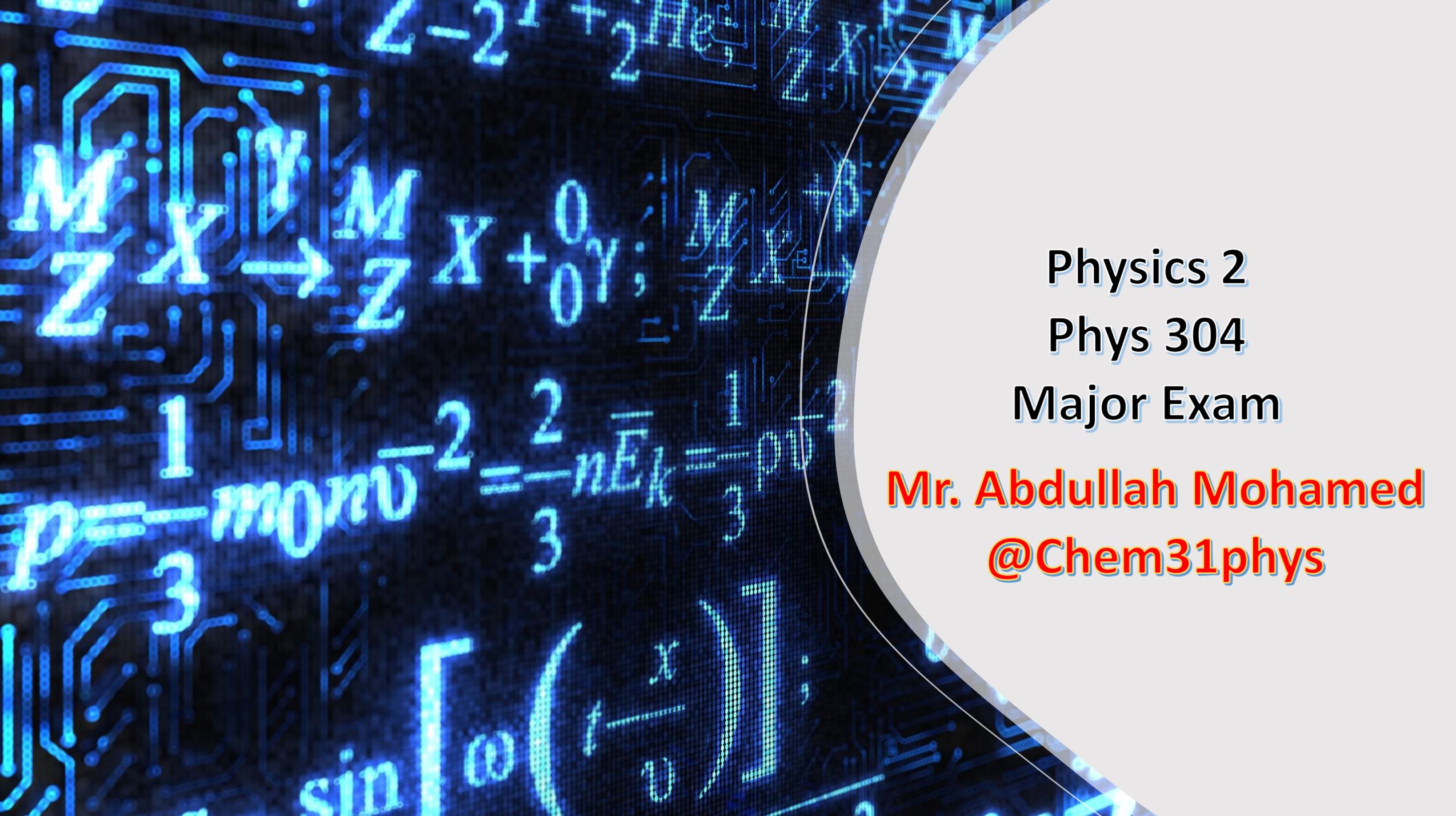
Phys 304

Major Exam

Mr. Abdullah Mohamed

@Chem31phys





Physics 2
Phys 304
Major Exam

Mr. Abdullah Mohamed
@Chem31phys

True & False

- 1) *Only transverse wave can be polarized (.....)*
- 2) *Diffraction fringes are not of the same width (.....)*
- 3) *a single magnetic pole has never been isolated (.....)*
- 4) *The net magnetic flux through any closed surface is always zero (.....)*
- 5) *Parallel conductors carrying currents in the same direction attract each other (.....)*
- 6) *In Elliptically polarized light the magnitude of electric vector E changes with time (.....)*
- 7) *The conditions required for Fresnel diffraction are achieved using two convex lenses (.....)*
- 8) *The net magnetic force acting on any closed current loop in a uniform magnetic field is zero (.....)*
- 9) *Fraunhofer diffraction; the source of light and the screen are at infinite distances from the obstacle. (.....)*
- 10) *diffraction of waves becomes noticeable only when the size of the obstacle is comparable to a wavelength. (.....)*

complete

1. *a resultant of two coherent linearly polarized waves is*
2. *mixture of linearly polarized light and unpolarized light is*
3. *The phenomenon of redistribution of light energy due to the superposition of light waves from two or more coherent sources is known as*
4. *the resultant of two coherent waves having different amplitudes and a constant phase difference of 90° is*
5. *the resultant of two coherent waves having same amplitudes and a constant phase difference of 90° is*
6. *_____ Measured in amperes*
7. *_____ Measured in ohms*
8. *_____ Depends on length and width of a wire*
9. *_____ The rate at which charge passes a given point*
10. *_____ Measured in volts*
11. *_____ Opposition to the flow of electric charge.*



Choice

1. Tesla is the unit of magnetic field, $1T=$

a) $1N.s/C.m$

b) $1N/A.m$

c) $1NA/m$

d) A and B are correct



The induced emf will increase with

- a) the increase in the number of turns of the coil*
- b) the increase in magnetic field strength*
- c) the increase in speed of relative motion*
- d) all of the these*



The laws of electromagnetic induction were given by?

- a) Ostwald*
- b) Faraday*
- c) Lanmark*
- d) Arrhenius*



• *As the resistance of a circuit decrease, the current will*

a) *increase*

b) *decrease*

c) *stay the same*

d) *Become zero*



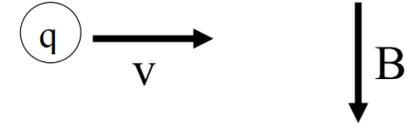
Find the direction of the magnetic force.

Into the screen

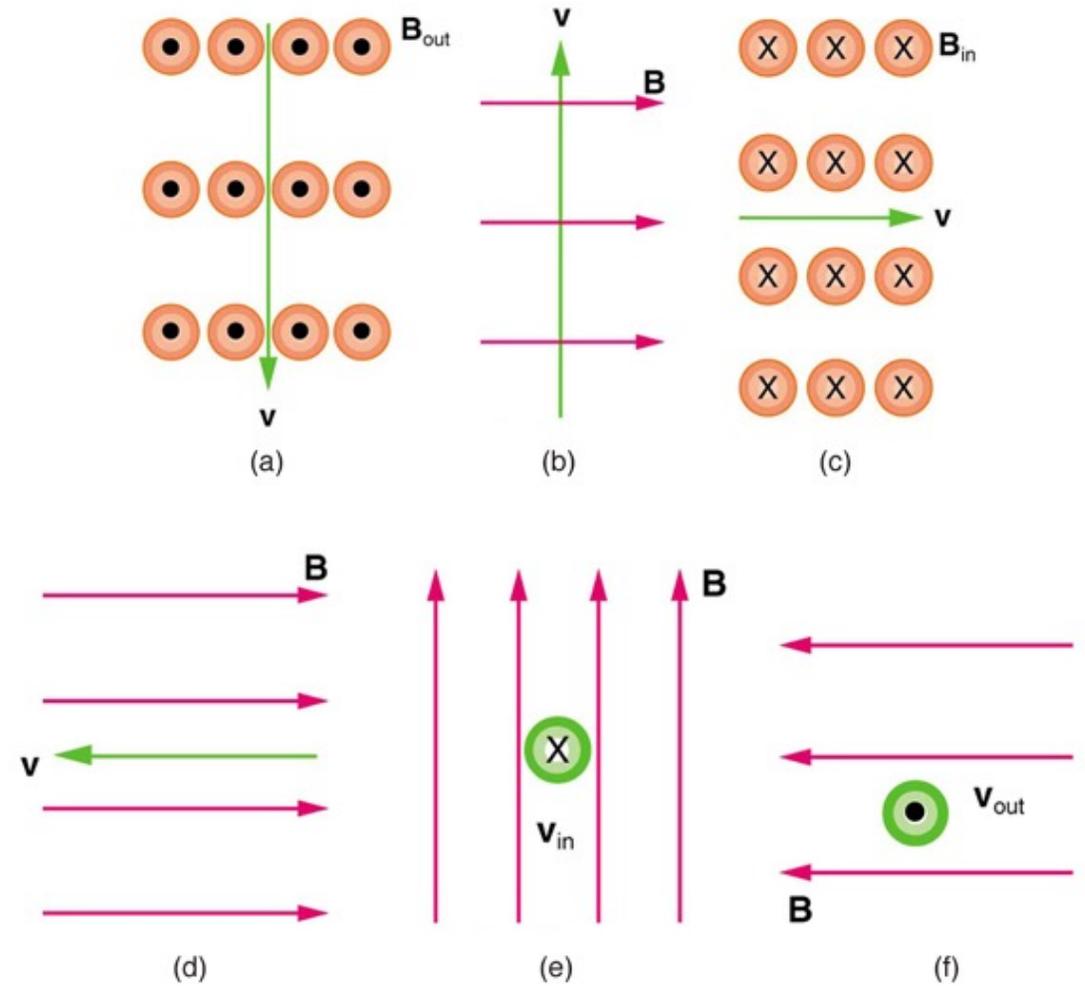
Out of the screen

Right

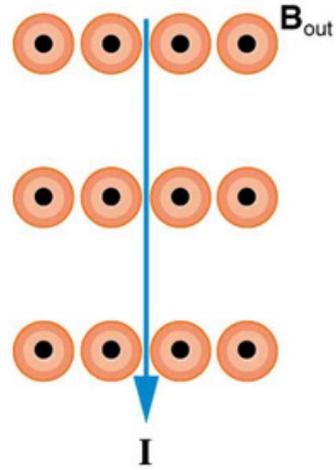
Left



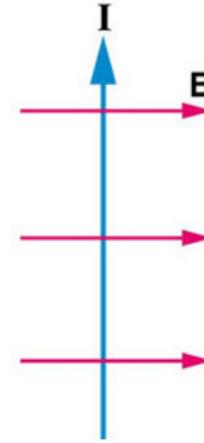
What is the direction of the magnetic force on a positive charge that moves as shown in each of the six cases shown in Figure ?



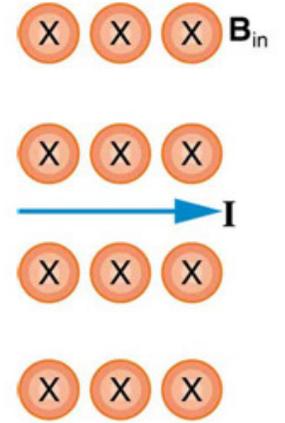
What is the direction of the magnetic force on the current in each of the six cases in Figure ?



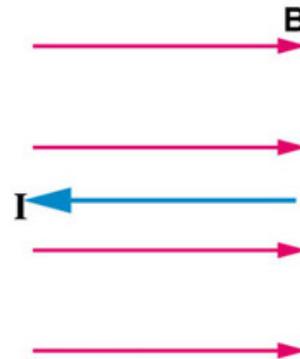
(a)



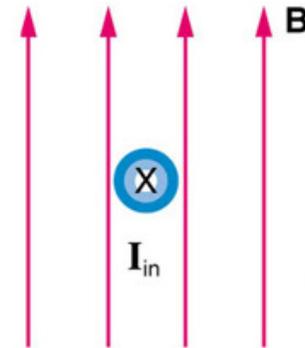
(b)



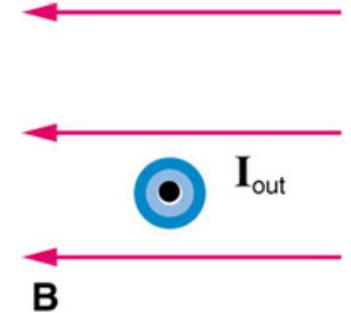
(c)



(d)



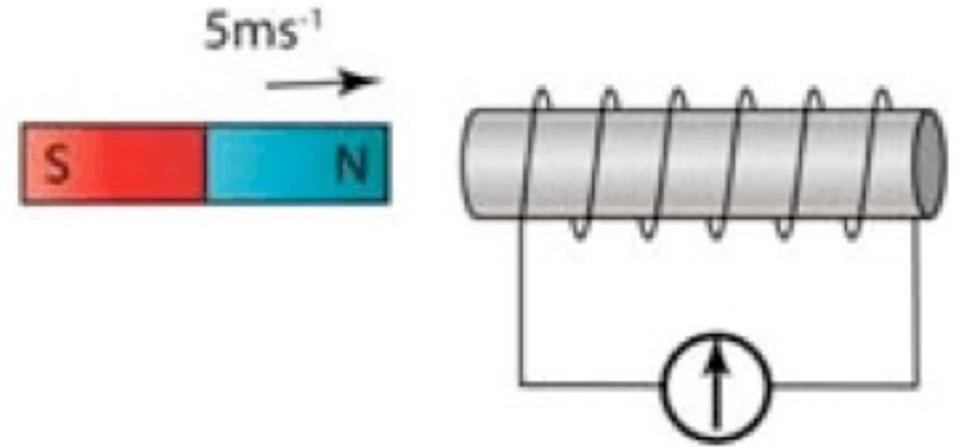
(e)



(f)

What is the direction of the induced magnetic field?

- a) *Left*
- b) *Right*
- c) *Up*
- d) *Down*



A magnetic field exerts a force on a charged particle:

a) Always

b) Never

c) if the particle is moving across the field lines

d) if the particle is moving along the field lines



Magnetic flux is related to magnetic field strength by the formula

a) $\Phi = BA$

b) $\Phi = BA^2$

c) $\Phi = B/A$

d) $\Phi = B/A^2$



The size of the force exerted on a moving charge relative to an external magnetic field is given by

a) Bqv

b) $Bqv\cos\theta$

c) $Bqv\sin\theta$

d) *none of these*



The magnetic field of the solenoid is 7.54mT, the current is 3A.

Calculate the number of turns per unit length?

a) 5×10^{-4}

b) 5×10^{-4}

c) 200

d) 2000



Find the current in a long straight wire that would produce a magnetic field $1.0 \times 10^{-4} \text{ T}$ at a distance of 5.0 cm from the wire.



What is the field inside a 2.00-m-long solenoid that has 2000 loops and carries a 1600-A current?



The magnetic field at a distance "R" from a long straight wire is measured as 2B.

The magnetic field at a distance "2R" from the wire

Zero

4B

B

2B



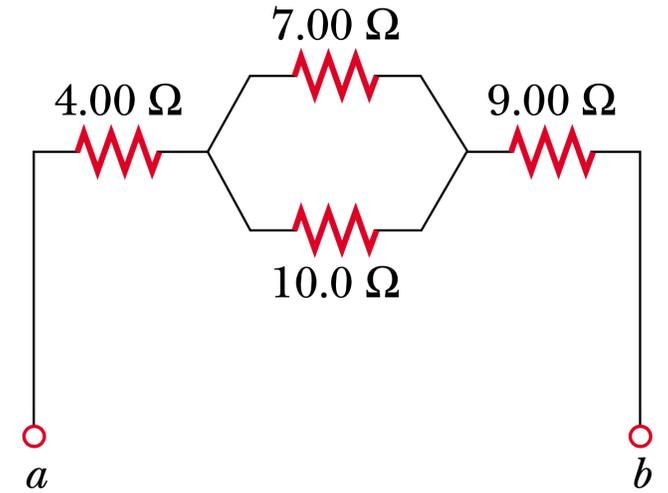
The hot and neutral wires supplying DC power to a light-rail commuter train carry 800 A and are separated by 75.0 cm. What is the magnitude and direction of the force between 50.0 m of these wires?



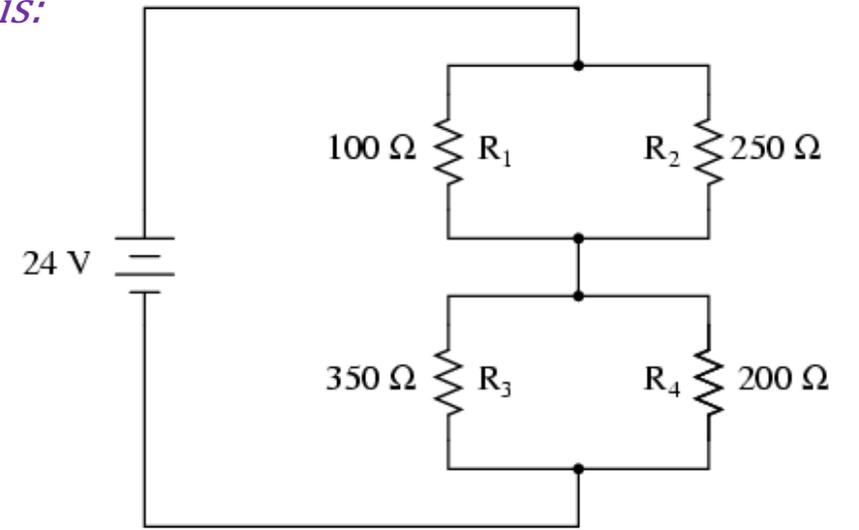
(a) Find the equivalent resistance between points a and b in Figure

(b) A potential difference of 34.0 V is applied between points a and b.

Calculate the current in each resistor.



• In the circuit shown the equivalent resistance (to the nearest Ohm) is:



1) Which among the following factors does the electrical resistivity of a metallic wire depend on?

(a) Length

(b) Thickness

(c) Nature of the material

(d) Its shape



An electric bulb is connected to a 220V generator. The current is 0.50 A. What is the power of the bulb?



Find the value of the resistance of the resistor, when a 40V battery is linked across an unknown resistor and there is a current of 100 mA in the circuit.



دعواتي للجميع بالتفوق والنجاح

أ. عبدالله محمد

