

AP Physics 1 Exam

Part I - MC (40 questions) - Tuesday/Wednesday

36 single answer

4 select two

Part II - Free Response (5 questions) - Thursday/Friday

- Question 1: Experimental Design (12 points).
- Question 2: Qualitative/Quantitative Translation (12 points).
- Question 3: Paragraph Argument Short Answer (7 points).
- Questions 4 and 5: Short Answer (7 points each).

(NOT necessarily in this order)

Each part is worth 50% of the exam.

Course content

- Unit 1: Kinematics
- Unit 2: Dynamics
- Unit 3: Circular Motion and Gravitation
- Unit 4: Energy
- Unit 5: Momentum
- Unit 6: Simple Harmonic Motion
- Unit 7: Torque and Rotational Motion
- Unit 8: Electric Charge and Electric Force
- Unit 9: DC Circuits
- Unit 10: Mechanical Waves and Sound

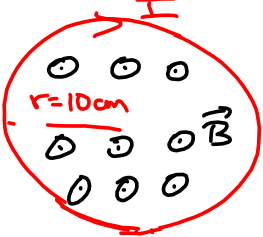
Will no longer be part
of AP Physics I
starting this year
(but is on AP Physics 2)
These ARE on your exam
though

Methods of Inducing EMF

1. Change the Magnetic Field

$$\Sigma = -N \frac{\Delta \Phi_B}{\Delta t} \quad \Phi_B = B_{\parallel} A$$

$\rho = 1000 \Omega/\text{m}$
 $R = \rho \cdot 2\pi r$



$r = 10 \text{ cm}$
 $\vec{B}_i = 5.50 \times 10^{-5} \text{ T}$ $\Delta t = 2.00 \text{ s}$
 $\vec{B}_f = 3.00 \times 10^{-4} \text{ T}$

$$A = \pi r^2$$

$$= \pi (0.10 \text{ m})^2$$

$$= 3.14 \times 10^{-2} \text{ m}^2$$

$$\Sigma = \frac{(\Delta B) A}{\Delta t}$$

$$= \frac{(3.14 \times 10^{-2} \text{ m}^2)(3.00 \times 10^{-4} - 5.5 \times 10^{-5} \text{ T})}{2 \text{ s}}$$

$$= \frac{(3.14 \times 10^{-2} \text{ m}^2)(2.45 \times 10^{-4})}{2 \text{ s}}$$

$$= 3.85 \times 10^{-6} \text{ V} = 3.85 \mu\text{V}$$

$$\Sigma = IR$$

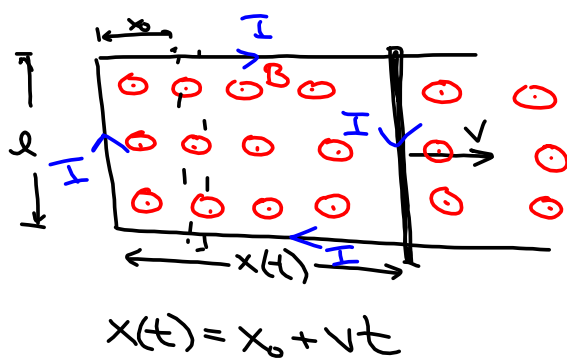
$$3.85 \times 10^{-6} \text{ V} = I (1000 \Omega/\text{m} \cdot 2\pi (0.10 \text{ m}))$$

$$= I (628 \Omega)$$

$$I = \underline{6.13 \text{ nA}}$$

2. Change the Area

$$\underline{E = vB}$$



$$\begin{aligned} \Sigma &= \frac{\Delta \Phi}{\Delta t} \\ &= \frac{B \Delta A}{\Delta t} \\ &= B \frac{l x(t)}{\Delta t} \\ &= Bl \left[\frac{x(t)}{\Delta t} \right] \leftarrow v \end{aligned}$$

$$\Sigma = Blv$$

3. Change the angle

