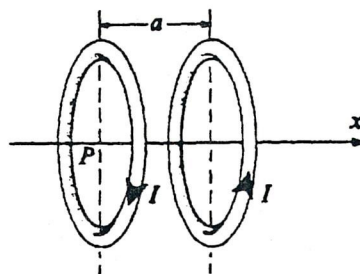


68. In the circuit shown above, the emf's of the batteries are given, as well as the currents in the outside branches and the resistance in the middle branch. What is the magnitude of the potential difference between X and Y ?

(A) 4 V
 (B) 8 V
 (C) 10 V
 (D) 12 V
 (E) 16 V



69. Two identical parallel conducting rings have a common axis and are separated by a distance a , as shown above. The two rings each carry a current I , but in opposite directions. At point P , the center of the ring on the left, the magnetic field due to these currents is

(A) zero
 (B) in the plane perpendicular to the x -axis
 (C) directed in the positive x -direction
 (D) directed in the negative x -direction
 (E) none of the above

70. A sheet of mica is inserted between the plates of an isolated charged parallel-plate capacitor. Which of the following statements is true?

(A) The capacitance decreases.
 (B) The potential difference across the capacitor decreases.
 (C) The energy of the capacitor does not change.
 (D) The charge on the capacitor plates decreases.
 (E) The electric field between the capacitor plates increases.