

- 1) A charge, $+Q$, is placed inside a balloon and the balloon is inflated. As the radius of the balloon r increases the number of field lines going through the surface of the balloon:
 - a. increases proportional to r^2
 - b. increases proportional to r
 - c. stays the same
 - d. decreases as $1/r$
- 2) The electric flux Φ_E is equivalent dimensionally to which of the following?
 - a. $N \times m^2/C$
 - b. N/C
 - c. $N \times m^2/C^2$
 - d. N/C^2
- 3) A closed surface contains the following point charges: 6 C, 4 C, -2 C, -4 C. The electric flux coming out of the surface is:
 - a. $16 C/\epsilon_0$
 - b. $-16 C/\epsilon_0$
 - c. $4 C/\epsilon_0$
 - d. $-4 C/\epsilon_0$
- 4) A spherical surface surrounds a point charge at its center. If the charge is doubled and if the radius of the surface is also doubled, what happens to the electric flux Φ_E out of the surface and the magnitude $|\vec{E}|$ of the electric field at the surface as a result of these doublings?
 - a. Φ_E and E do not change
 - b. Φ_E and E remains the same
 - c. Φ_E and E decreases
 - d. Φ_E and E increases