

Question 52624-06
0.29-78%

A point charge of +4.0 micro-C lies at the center of a hollow spherical conducting shell that has a net charge of -13.0 micro-C. If the inner radius of the shell is 2.0 cm and the outer radius is 3.0 cm, then the ratio between the charge density on the inner surface to the charge density on the outer surface is:

- (a) 4 : 1.
- (b) 1 : 2.
- (c) -1 : 1.
- (d) -1 : 2.
- (e) 1 : 1.

Question 52724-06
0.10-67%

A +20 micro-Coulomb point charge is at the center of a conducting spherical shell that has an outer radius of 1.0 m and an inner radius of 0.50 m. The net charge of the spherical shell is zero. What is the surface charge density on the outer surface of the shell?

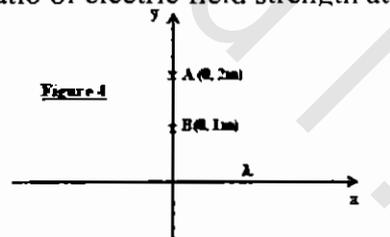
- (a) +6.4 micro-Coulomb/(m**2)
- (b) -6.4 micro-Coulomb/(m**2)
- (c) +1.6 micro-Coulomb/(m**2)
- (d) -1.6 micro-Coulomb/(m**2)
- (e) zero

24-7 Applying Gauss' Law: Cylindrical Symmetry

24-07

Question 528

Consider an infinitely long line of charge density 2.0 micro-C/m lying along the x-axis as shown in Figure 4. What is the ratio of electric field strength at point A to that at point B?



- (a) 0.25
- (b) 1.00
- (c) 2.00
- (d) 0.50
- (e) 4.00

Question 52924-07
0.48-42%

An infinite line of charge produces an electric field of 6.0×10^4 N/C at a perpendicular distance of 2.5 m from its axis. Calculate the linear charge density.

- (a) 6.3×10^{-6} C/m.
- (b) 7.0×10^{-6} C/m.
- (c) 8.3×10^{-6} C/m.
- (d) 9.5×10^{-6} C/m.
- (e) 5.0×10^{-6} C/m.

24-07

C.53-54%

Question 530

Two long, charged, concentric cylindrical shells have radii 3.0 and 6.0 cm. The charge per unit length is -2.00×10^{-6} C/m on the inner cylinder and $+5.00 \times 10^{-6}$ C/m on the outer cylinder. Find the electric field at $r = 4.0$ cm, where r is the radial distance from the common central axis.

- (a) 9.00×10^{-5} N/C radially outward
- (b) 9.00×10^{-5} N/C radially inward
- (c) 13.5×10^{-5} N/C radially inward
- (d) 22.5×10^{-5} N/C radially inward
- (e) 13.5×10^{-5} N/C radially outward

24-07

C.47-45%

Question 531

Figure 3 shows two infinitely long rods carrying uniform linear charge densities λ_1 and λ_2 . If the net electric field at point A is zero, then the ratio λ_2/λ_1 is:

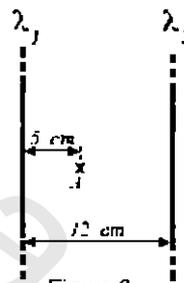


Figure 3

- (a) 1.4
- (b) 1.7
- (c) 0.71
- (d) 2.7
- (e) 2.3

24-07

C.35-51%

Question 532

Figure 1 shows two infinitely long lines of charge with uniform linear charges densities: $\lambda_1 = -9.00$ nano-Coulomb/m and $\lambda_2 = +3.00$ nano-Coulomb/m. The separation between the two lines of charge is $d = 1.00$ m. What is the net electric field at point P?

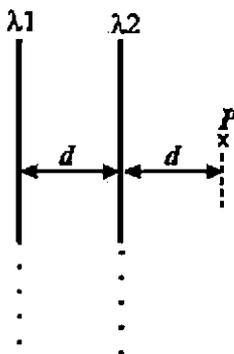


FIGURE 1

- (a) 27 N/C to the left
- (b) 72 N/C to the left
- (c) 27 N/C to the right
- (d) 135 N/C to the left
- (e) 135 N/C to the right