Grade

8.00 out of 10.00 (80%)

Question 1

Complete

Mark 1.00 out of 1.00

The total electric flux through a closed cylindrical (length = 1.2 m, diameter = 0.20 m) surface is equal to -5.0 N × m^2/C. Determine the net charge within the cylinder.

Select one:

- -44pC
- -16pC
- -71pC
- -62pC
- -53pC

The correct answer is: -44pC

Question 2

Complete

Mark 1.00 out of 1.00

When a positive charge q is placed in the field created by two other charges Q_1 and Q_2, each a distance r away from q, the acceleration of q is

Select one:

- in the direction of the positive charge if Q_1 and Q_2 are of opposite sign.
- in the direction of the charge Q_1 or Q_2 of greater magnitude.
- in the direction of the charge Q_1 or Q_2 of smaller magnitude.
- in a direction determined by the vector sum of the electric fields of Q_1 and Q_2.
- in the direction of the negative charge if Q_1 and Q_2 are of opposite sign.

The correct answer is: in a direction determined by the vector sum of the electric fields of
Q_1andQ_2.

Question 3

Complete

Mark 1.00 out of 1.00

In a diagram of charges and electric field lines, one charge has twelve field lines going outward from it and a second charge has three field lines going into it. If one of the charges is 100 nC, what is the other one?

Select one:

- 100nC
- Both answers b and c can be correct.
- -25nC
- 25 nC
- -100nC

The correct answer is: -25nC

Question 4

Complete

Mark 0.00 out of 1.00

A point charge Q is placed on the x axis at x = -2.0 m. A second point charge, -Q, is placed at x = 1.0 m. If Q = 60 uC, what is the magnitude of the electrostatic force on a 40-uC charge placed at the origin?

Select one:

- 16N
- 3N
- 32N
- 11N
- 27N

The correct answer is: 27N

Question 5

Complete

Mark 1.00 out of 1.00

A long nonconducting cylinder (radius = 6.0 mm) has a nonuniform volume charge density given by ar^2, where a = 6.2 uC/m^5 and r is the distance from the axis of the cylinder. What is the magnitude of the electric field at a point 2.0 mm from the axis?

Select one:

- 1.4 N/C
- 2.0N/C
- 1.6N/C
- 5.4N/C
- 1.8N/C

The correct answer is: 1.4 N/C

Question 6

Complete

Mark 1.00 out of 1.00

Charge of uniform surface density (4.0 nC/m^2) is distributed on a spherical surface (radius = 2.0 cm). What is the total electric flux through a concentric spherical surface with a radius of 4.0 cm?

- 1.7 $N \times m^2/C$
- 2.3 $N \times m^2/C$
- 4.0 $N \times m^2/C$
- 9.1 $N \times m^2/C$
- 2.8 $N \times m^2/C$

The correct answer is:**2.3 $N \times m^2/C$**

Question 7

Complete

Mark 1.00 out of 1.00

Two charges of 15 pC and -40 pC are inside a cube with sides that are of 0.40-m length. Determine the net electric flux through the surface of the cube.

- -1.1 N × m^2/C
- -0.47 N × m^2/C
- +1.1 N × m^2/C
- +2.8 N × m^2/C
- -2.8 N × m^2/C

The correct answer is: **$-2.8\ N \times m^2/C$**

Question 8

Complete

Mark 1.00 out of 1.00

Three point charges are positioned on the *x* axis. If the charges and corresponding positions are +32 *u*C at *x* = 0, +20 *u*C at *x* = 40 cm, and -60 *u*C at *x* = 60 cm, what is the magnitude of the electrostatic force on the +32-*u*C charge?

Select one:

- 12
- 50
- 48
- 84
- 36

The correct answer is: 12

Question 9

Complete

Mark 1.00 out of 1.00

A point charge $+Q$ is located on the x axis at $x = a$, and a second point charge $-Q$ is located on the x axis at $x = -a$. A Gaussian surface with radius $r = 2a$ is centered at the origin. The flux through this Gaussian surface is

Select one:

- zero because the electric field is zero at every point on the surface.
- greater than zero
- none of the above
- zero because at every point on the surface the electric field has no component perpendicular to the surface.
- zero because the negative flux over one hemisphere is equal to the positive flux over the other.

The correct answer is: zero because the negative flux over one hemisphere is equal to the positive flux over the other.

Question 10

Complete

Mark 0.00 out of 1.00

A particle (charge = +40 *u*C) is located on the *x* axis at the point *x* = -20 cm, and a second particle (charge = -50 *u*C) is placed on the *x* axis at *x* = +30 cm. What is the magnitude of the total electrostatic force on a third particle (charge = -4.0 *u*C) placed at the origin (*x* = 0)?

Select one:

- 72N
- 56N
- 16N
- 35N
- 41N

The correct answer is: 56N

Finish review

Jump to...

On the lands that we study, we walk, and we live, we acknowledge and respect the traditional custodians and cultural knowledge holders of these lands.

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