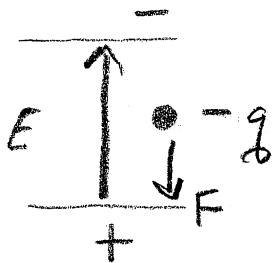


Chapter 18

(7) C

(8) C



(20) C

charge must be conserved.

(21) B

(25) C

$$\frac{1e^-}{x} = \frac{-1.6 \times 10^{-19} \text{ C}}{-13 \times 10^{-9} \text{ C}}$$

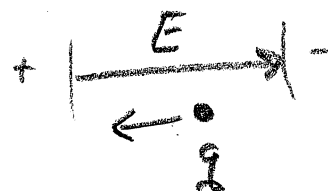
$$x = 8.1 \times 10^{10}$$

(29) A

$$E = \frac{F}{q}$$

$$q = \frac{F}{E} = \frac{3 \times 10^{-6}}{15}$$

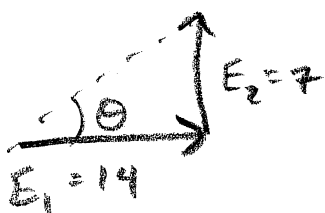
$$q = 2 \times 10^{-7} \text{ C}$$



force is in opposite direction
therefore charge is negative.

(30) A

Add the fields together.



$$\tan \theta = \frac{7}{14}$$

$$\theta = 26.5^\circ$$

36 B

37 C

40 A

45 D

46 C $\frac{q_1 + q_2}{r^2} = \frac{10}{10^2} = 10^{-10}$

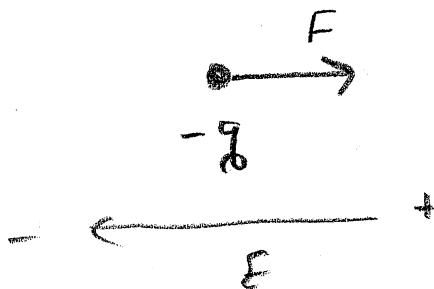
47 B

58 B

56 - 5 = 51

67 A

$$E = \frac{F}{q} = \frac{10}{10 \times 10^{-9}} = 1 \times 10^9 \text{ N/C}$$



68

