

788 #24-28, 30-34

$$24) E = \frac{F}{q} = \frac{2.0 \times 10^{-4} \text{ N}}{5.0 \times 10^{-6} \text{ C}} = 40 \text{ N/C}$$

$$25) E = \frac{.060 \text{ N}}{2.0 \times 10^{-8} \text{ C}} = 3000000 \text{ N/C right}$$

$$26) E = \frac{F}{q} \quad 27) = \frac{F}{3.0 \times 10^{-7}} \quad F = 8.1 \times 10^{-6} \text{ N south}$$

q	F	E
1.0×10^{-6}	0.30	3.0×10^5
2.0×10^{-6}	0.66	3.3×10^5
3.0×10^{-6}	0.45	1.5×10^5

$$28) E = \frac{F}{q} = \frac{0.080 \text{ N}}{.5 \times 10^{-6} \text{ C}} = 16000 \text{ N/C towards } q$$

$$30) E = \frac{kQ}{r^2} = \frac{(9 \times 10^9)(4.2 \times 10^{-6})}{(1.2)^2} = 26250 \text{ N/C}$$

$$31) E = \frac{(9 \times 10^9)(4.2 \times 10^{-6})}{(2.4)^2} = 6562 \text{ N/C}$$

$$32) E = \frac{(9 \times 10^9)(7.2 \times 10^{-6})}{(1.6)^2} = 25313 \text{ N/C}$$

$$33) E = \frac{kQ}{r^2} \quad 450 = \frac{(9 \times 10^9) Q}{(.25)^2} \quad Q = 3.1 \times 10^{-9} \text{ C}$$

$$34) 360 = \frac{(9 \times 10^9)(2.4 \times 10^{-6})}{r^2} \quad r = 7.7 \text{ m}$$