

- 28** A diffraction grating has  $N$  lines per unit length and is placed at  $90^\circ$  to monochromatic light of wavelength  $\lambda$ .

What is the expression for  $\theta$ , the angle to the normal to the grating at which the third order diffraction peak is observed?

**A**  $\sin \theta = \frac{1}{3N\lambda}$       **B**  $\sin \theta = \frac{N\lambda}{3}$       **C**  $\sin \theta = 3N\lambda$       **D**  $\sin \theta = \frac{3\lambda}{N}$

- 29** Two parallel plates D and E are 2 mm apart in a vacuum. An electron with charge  $-1.6 \times 10^{-19} \text{ C}$