30 The interference patterns from a diffraction grating and a double slit are compared.

Using the diffraction grating, yellow light of the first order is seen at 30° to the normal to the grating.

The same light produces interference fringes on a screen 1.0 m from the double slit. The slit separation is 500 times greater than the line spacing of the grating.

What is the fringe separation on the screen?

A 2.5×10^{-7} m

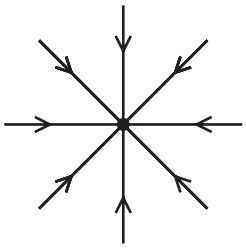
B 1.0×10^{-5} m

C 1.0×10^{-3} m

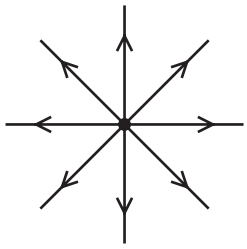
D 1.0×10^{-1} m

31 Which diagram shows the pattern of the electric field lines due to a negative point charge?

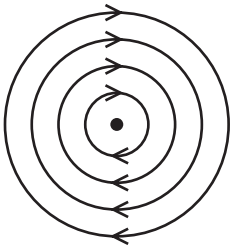
A



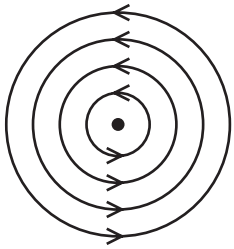
B



C



D



32 In an electrolyte, the electric current is carried by charged particles (ions) in solution.

What is **not** a possible value for the charge on an ion in solution?

A -4.8×10^{-19} C

B $+1.6 \times 10^{-19}$ C

C $+3.2 \times 10^{-19}$ C

D $+4.0 \times 10^{-19}$ C