

- 17** 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  $30^\circ$  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**  $2.5 \times 10^{-7} \text{ m}$

**B**  $1.0 \times 10^{-5} \text{ m}$

**C**  $1.0 \times 10^{-3} \text{ m}$

**D**  $1.0 \times 10^{-1} \text{ m}$