

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 $2.5 \times 10^{-7} \text{ m}$

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

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

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