

**27** Monochromatic light is directed onto a pair of slits. Interference fringes that are 2.0 mm apart are observed on a distant screen.

The frequency of the light used is then doubled and the slit separation is halved.

How far apart are the new interference fringes?

**A** 0.50 mm

**B** 2.0 mm

**C** 4.0 mm

**D** 8.0 mm

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