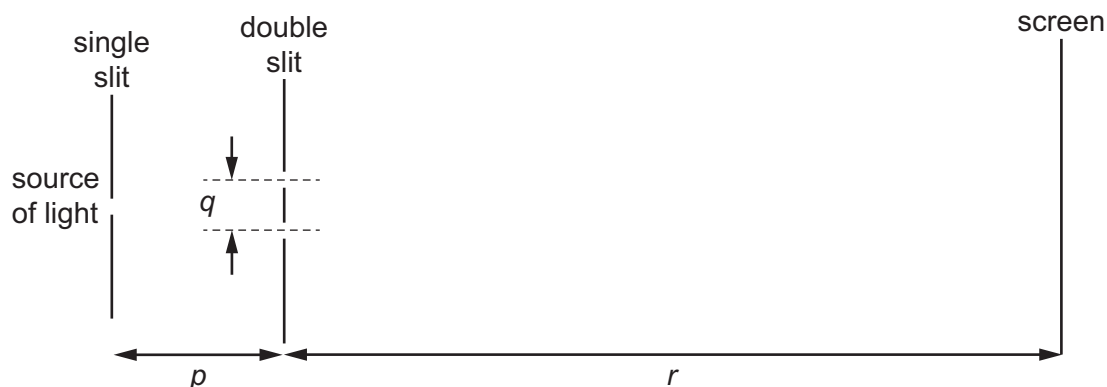


- 28 A teacher sets up the apparatus shown to demonstrate a double-slit interference pattern on a screen.



Which change to the apparatus will increase the fringe spacing?

- A decrease the distance  $p$
  - B decrease the distance  $q$
  - C decrease the distance  $r$
  - D decrease the wavelength of the light
- 29 Light of a single unknown wavelength and blue light of a single wavelength are both incident normally on a diffraction grating. Two diffraction patterns are produced, one for each wavelength of light.

The third-order maximum for the blue light occurs at the same angle as the second-order maximum for the light of unknown wavelength. The wavelength of the blue light is 480 nm.

What is the unknown wavelength?

- A 320 nm
  - B 720 nm
  - C 960 nm
  - D 1440 nm
- 30 What is the electric field strength in a region where a proton accelerates at  $2.00 \text{ m s}^{-2}$  due to the field?
- A  $11.4 \text{ pV m}^{-1}$
  - B  $5.22 \text{ nV m}^{-1}$
  - C  $10.4 \text{ nV m}^{-1}$
  - D  $20.9 \text{ nV m}^{-1}$