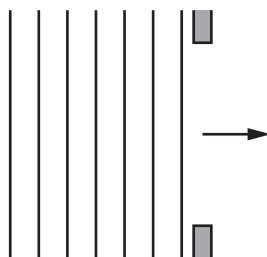


- 27 In an experiment, water waves in a ripple tank are incident on a gap, as shown.



Some diffraction of the water waves is observed.

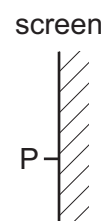
Which change to the experiment would provide a better demonstration of diffraction?

- A Increase the amplitude of the waves.
 - B Increase the frequency of the waves.
 - C Increase the wavelength of the waves.
 - D Increase the width of the gap.
- 28 Light of wavelength λ is emitted from two point sources R and S and falls onto a distant screen.

R •

S •

(not to scale)



At point P on the screen, the light intensity is zero.

What could explain the zero intensity at P?

- A Light from the two sources is emitted 180° out of phase and the path difference to P is $\frac{1}{2}\lambda$.
 - B Light from the two sources is emitted in phase and the path difference to P is λ .
 - C Light from the two sources is emitted 90° out of phase and the path difference to P is λ .
 - D Light from the two sources is emitted in phase and the path difference to P is $\frac{1}{2}\lambda$.
- 29 Apparatus is arranged to show double-slit interference using monochromatic light. The slit separation is 0.10 mm. The distance from the double slit to the screen where the interference pattern is observed is 2.4 m and the fringe width is 12 mm.

The distance to the screen is now changed to 1.8 m and the slit separation is doubled.

What is the new fringe width?

- A 1.5 mm
- B 4.5 mm
- C 6.0 mm
- D 9.0 mm