

Solutions

Each answer shows the steps, then the **result**.

2.1

- that light behaves as a wave (it interferes)

2.2

- $d \sin \theta = m\lambda$

2.3

- $\sin \theta = \frac{m\lambda}{d} = \frac{600 \times 10^{-9}}{0.20 \times 10^{-3}} = 3.0 \times 10^{-3} \Rightarrow \theta = 0.17^\circ$

3.1 A

3.2 B

3.3

(a)

- $d = \frac{1}{300 \times 10^3 \text{ m}^{-1}} = 3.33 \times 10^{-6} \text{ m}$

(b)

- $\sin \theta = \frac{\lambda}{d} = \frac{500 \times 10^{-9}}{3.33 \times 10^{-6}} = 0.15 \Rightarrow \theta = 8.6^\circ$