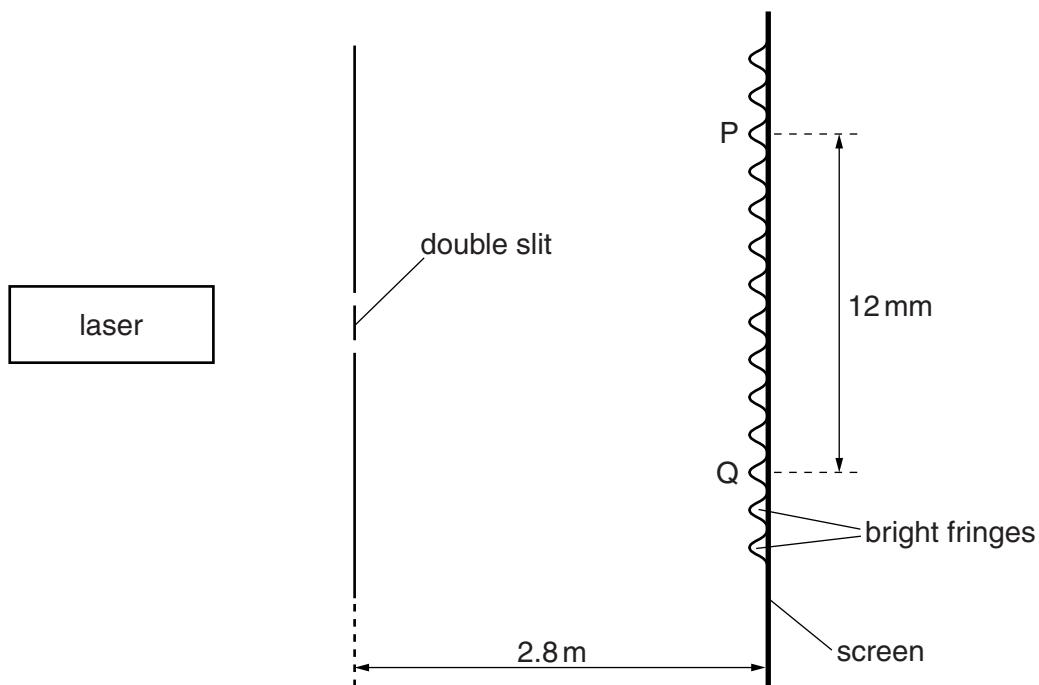


- 7 A laser is placed in front of a double slit, as shown in Fig. 7.1.



**Fig. 7.1** (not to scale)

The laser emits light of frequency 670 THz. Interference fringes are observed on the screen.

- (a) Explain how the interference fringes are formed.

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[3]

- (b) Show that the wavelength of the light is 450 nm.

[2]

- (c) The separation of the maxima P and Q observed on the screen is 12mm. The distance between the double slit and the screen is 2.8m.

Calculate the separation of the two slits.

$$\text{separation} = \dots \text{ m} [3]$$

- (d) The laser is replaced by a laser emitting red light. State and explain the effect on the interference fringes seen on the screen.

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[2]

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