

- 6 Light of wavelength 430 nm is incident normally on a surface, as illustrated in Fig. 6.1.

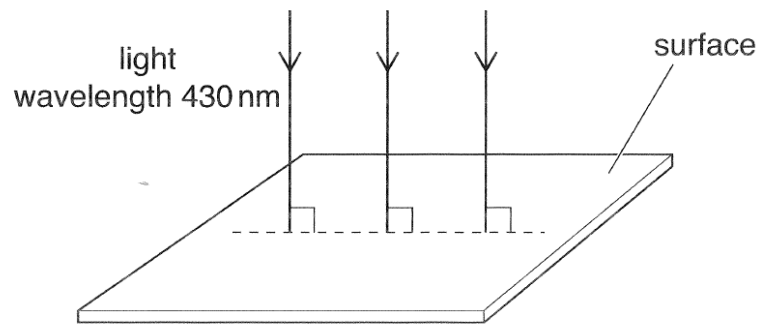


Fig. 6.1

The power of the light is 3.2 mW. The light is completely absorbed by the surface.

- (a) Calculate the number of photons incident on the surface in 1.00 s.

number = [3]

- (b) Use your answer in (a) to determine

- (i) the total momentum of the photons arriving on the surface in 1.00 s.

momentum = kg m s^{-1} [2]

(ii) the force exerted on the surface by the light. Explain your working.

force = N [2]

(c) Explain why the force exerted is generally lower than the value calculated in (b)(ii).

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..... [1]

Section B

Answer **one** question in this section in the spaces provided.