**8** Light of wavelength 590 nm is incident normally on a surface, as illustrated in Fig. 8.1.

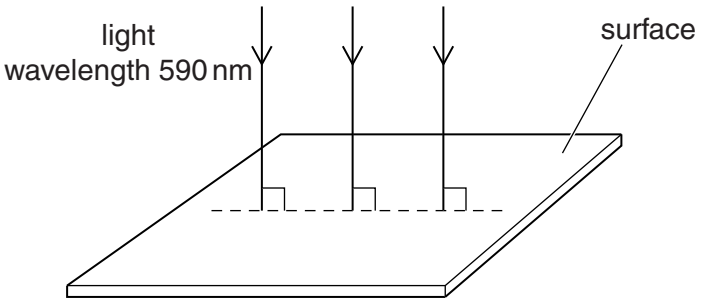


**Fig. 8.1**

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 1.0 s.

number = ..... [3]

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

**(i)** the total momentum of the photons arriving at the surface in 1.0 s,

momentum = ..... $kg\,m\,s^{-1}$ [3]

**(ii)** the force exerted on the surface by the light.

force = ..... N [1]