5 Red light of wavelength 640 nm is incident normally on a diffraction grating having a line spacing of 1.7×10^{-6} m, as shown in Fig. 5.1.

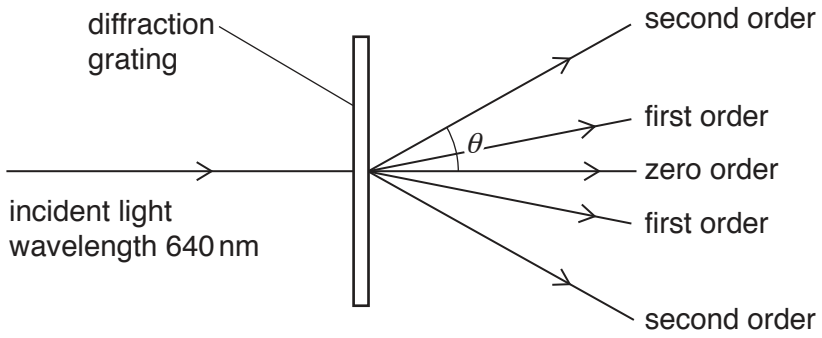

Fig. 5.1 (not to scale)

The second order diffraction maximum of the light is at an angle θ to the direction of the incident light.

(a) Show that angle θ is 49°.

[3]

(b) Determine a different wavelength of **visible** light that will also produce a diffraction maximum at an angle of 49°.

wavelength = ... m [2]

[Total: 5]