6 A stiff straight copper wire XY is held fixed in a uniform magnetic field of flux density 2.6×10^{-3}T, as shown in Fig. 6.1.

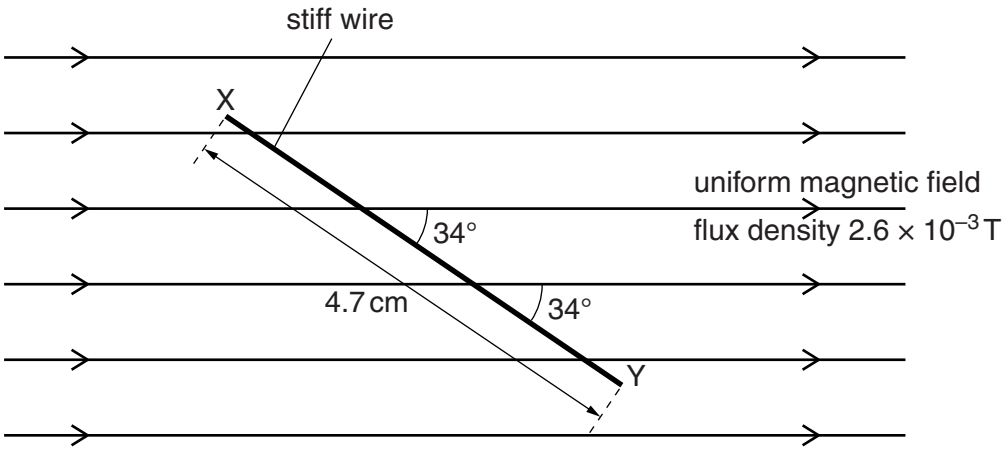

Fig. 6.1

The wire XY has length 4.7 cm and makes an angle of 34° with the magnetic field.

(a) Calculate the force on the wire due to a constant current of 5.4 A in the wire.

force = ... N [2]

(b) The current in the wire is now changed to an alternating current of r.m.s. value 1.7 A.

Determine the total variation in the force on the wire due to the alternating current.

variation in force = ... N [3]