

- 3 Fig. 3.1 shows a picture frame hanging symmetrically by two cords by a nail fixed to a wall.

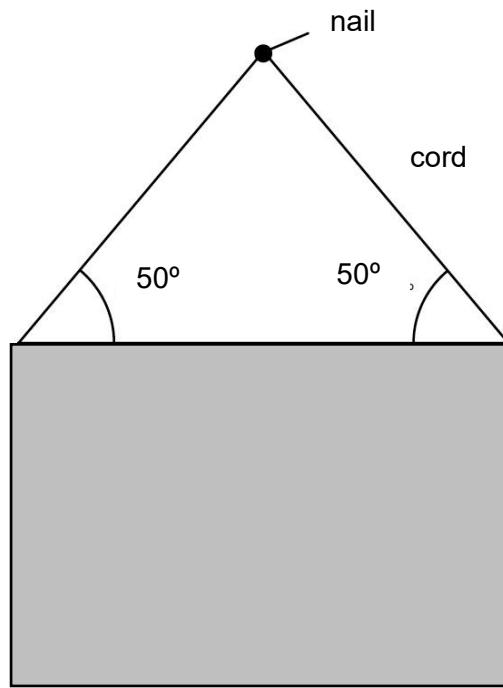


Fig. 3.1

- (a) (i) State the conditions for the picture frame to be in equilibrium

.....
.....
.....

[1]

- (ii) Sketch a vector triangle to represent the equilibrium of forces acting on the picture frame.

[2]

- (b) The mass of the picture frame is 1.0 kg.

Use your diagram in (a) to determine the tension in the cord.

tension = N [2]

- (c) The cord breaks at a maximum tension of 10 N.

Determine the minimum angle between the cord and the horizontal top of the picture frame.

angle = ° [2]