5.

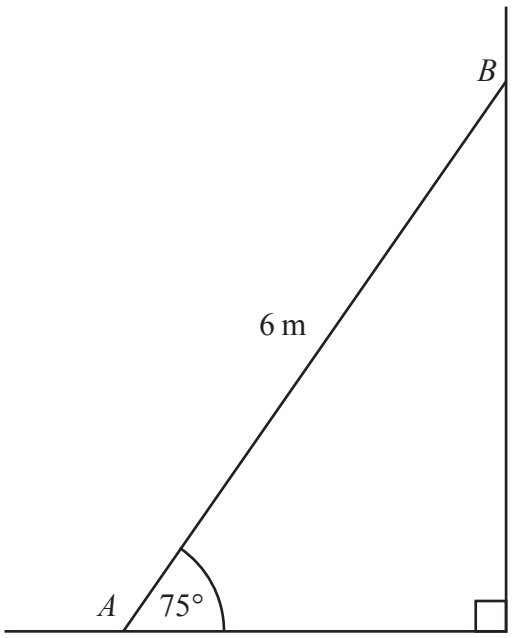


Figure 2

A uniform beam AB, of mass 15 kg and length 6 m, rests with end A on rough horizontal ground. The end B of the beam rests against a rough vertical wall.

The beam is inclined at 75° to the ground, as shown in Figure 2.

The coefficient of friction between the beam and the wall is 0.2

The coefficient of friction between the beam and the ground is μ

The beam is modelled as a uniform rod which lies in a vertical plane perpendicular to the wall.

The beam rests in limiting equilibrium.

(a) Find the magnitude of the normal reaction between the beam and the wall at B.

(5)

(b) Find the value of μ

(6)

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Question 5 continued

(Total for Question 5 = 11 marks)