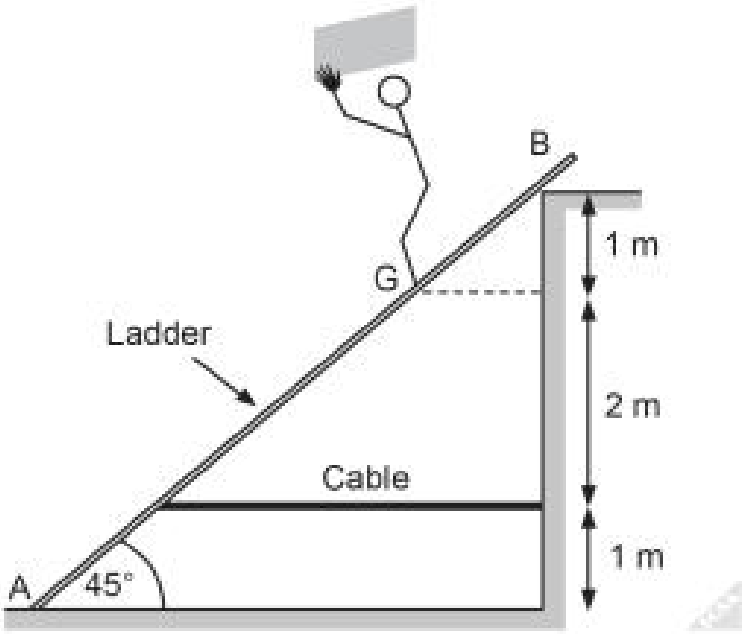
Question 13 **(10 marks)**

Workers at an ice skating venue use a ladder to fix a sign 5.0 m above the surface of the ice. To prevent the 6.00 m long ladder from slipping on the ice, they tie a cable between the ladder and the 4.00 m high wall. The cable is at right angles to the wall. The uniform 15.0 kg ladder is placed at an angle of 45° between the frictionless surfaces at A and B. A 90.0 kg worker is standing still on the ladder at G.



(a) On the diagram above, draw and label the forces acting on the ladder. Assume the reaction force at B acts at right angles to the ladder. (4 marks)

(b) By taking moments around A, calculate the tension in the cable. (6 marks)

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