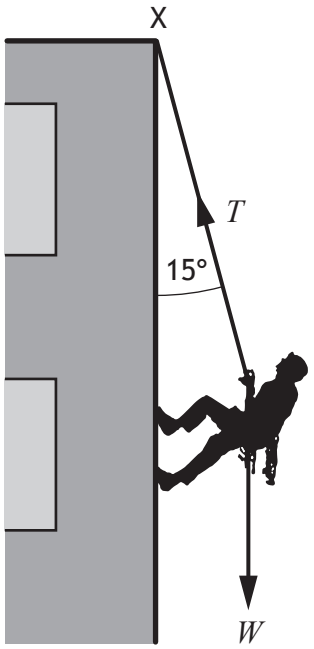
2. A student abseils down the outside of a building using a rope.



not to scale

The mass of the student is 55 kg.

The rope, of negligible mass, is attached to a fixed point X at the top of the building.

The rope makes an angle of 15° to the building.

(a) Calculate the weight W of the student. **3**

Space for working and answer

2. (continued)

(b) Determine the tension T in the rope. **3**

Space for working and answer

(c) As the student abseils down the building the angle the rope makes with the building decreases.

State whether the tension in the rope increases, decreases or stays the same.

Justify your answer. **2**

[Turn over