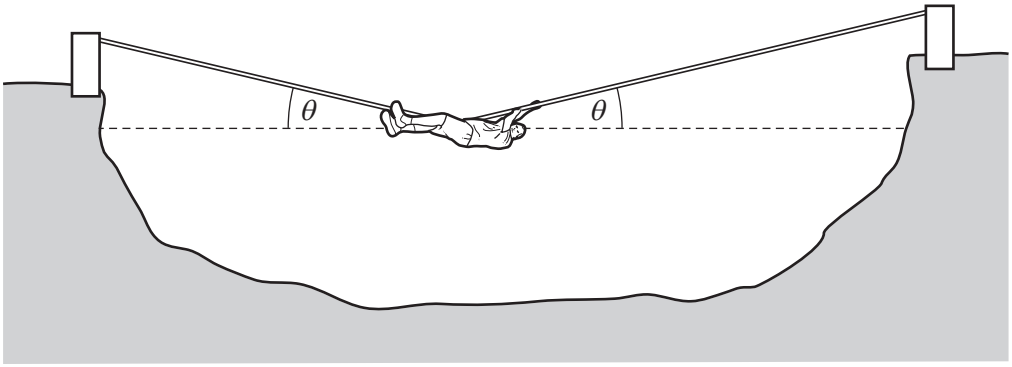
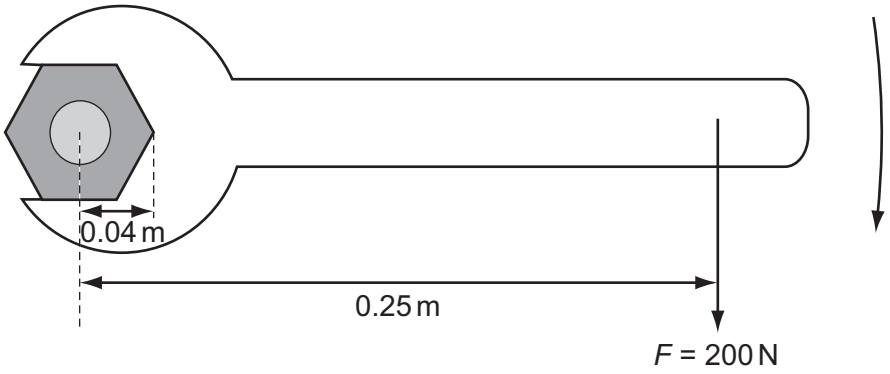
11 The diagram shows a rope bridge that a student makes on an adventure training course. The student has a weight *W*.



Which formula gives the tension *T* in the rope?

A $T = \frac{W}{2\cos\theta}$ **B** $T = \frac{W}{2\sin\theta}$ **C** $T = \frac{W}{\cos\theta}$ **D** $T = \frac{W}{\sin\theta}$

12 A spanner is used to tighten a nut as shown.



A force *F* is applied at right-angles to the spanner at a distance of 0.25 m from the centre of the nut. When the nut is fully tightened, the applied force is 200 N.

What is the resistive torque, in an anticlockwise direction, preventing further tightening?

A 8 N m **B** 42 N m **C** 50 N m **D** 1250 N m

Space for working